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AND

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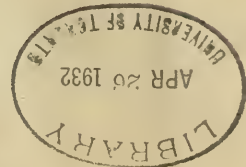
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Biological
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Serials

A SEMIMONTHLY
REVIEW OF
MEDICINE AND SURGERY

Genitourinary Number

MAY THIRD
1922



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II
N57
v.115

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53 Park Place, at West Broadway - New York, N. Y.

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PHILADELPHIA

NEW YORK, WEDNESDAY, MAY 3, 1922

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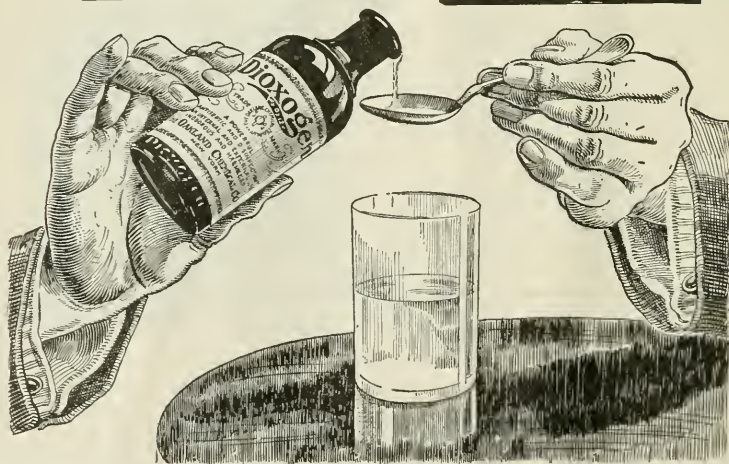
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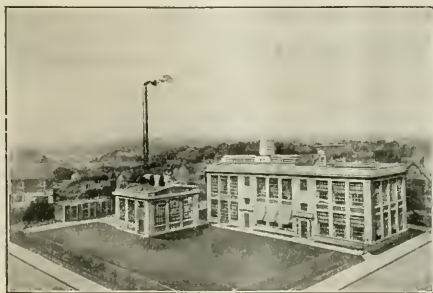
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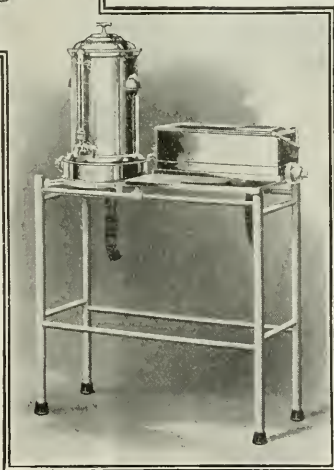
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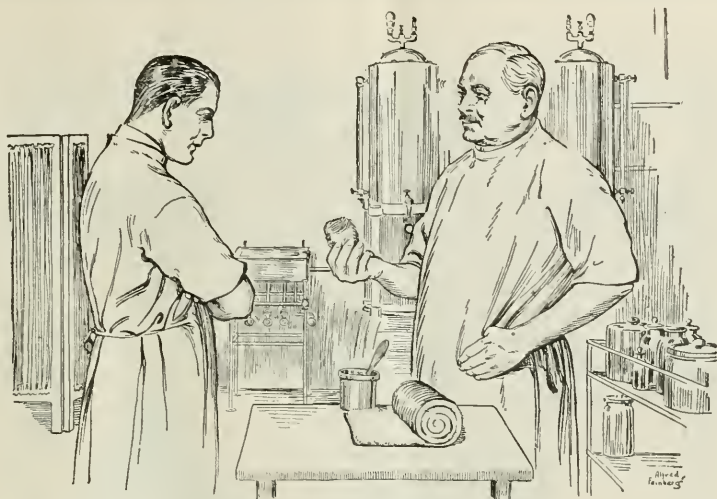
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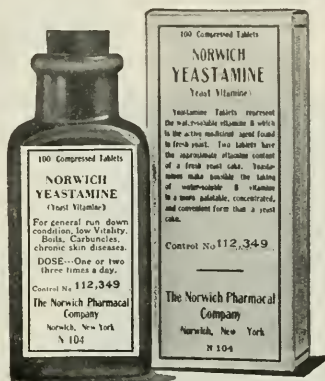
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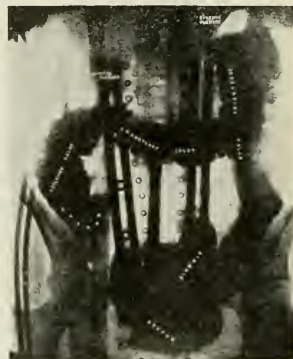
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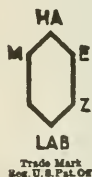
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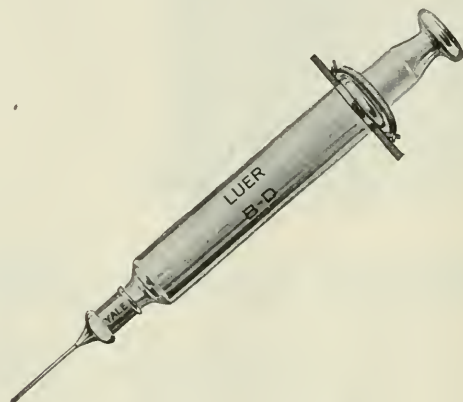
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VOL. CXV, No. 9

NEW YORK, WEDNESDAY, MAY 3, 1922.

WHOLE No. 2232

A Urologist's Views on Syphilis

By CHARLES H. CHETWOOD, M.D., LL.D., F.A.C.S.,
New York.

In the study of syphilis we soon become familiar with the usual sequence of clinical symptoms of the disease, which has led to the designation of well defined stages, characterized by certain specific manifestations. But we also become aware of the fact that striking variations from these generalities occur in the most pronounced contradictions: as, for instance, when the primary stage, after its expiration, makes its reappearance during the secondary stages in the form of a relapsing chancre, which, together with other clinical evidences of the second stage, merges these two stages into one; again, when a precocious tertiary manifestation is precipitated during the secondary period. Thus, also, are there variations in the serological findings, contrary to, in place of being parallel with the clinical situation. What one of us has not seen instances of active clinical manifestations of this disease and negative serological findings; while examples of the reverse of this situation are too numerous to mention. The spinal fluid, too, manifests certain regularities and irregularities in keeping with the departure from absolute conformity.

About three or four per cent. of cases examined in the primary stage, it seems, show some positive reaction of spinal fluid, whereas, in the standardized regular course the disease is not expected to be revealed at all in the spinal fluid at this stage, as it is commonly found that the blood serum does not give a positive reaction until from four to six weeks after the initial stage. In from twelve to fifteen per cent., even after treatment has been instituted, abnormal spinal fluid is demonstrated in the secondary stage (1). I shall leave it to others better qualified to do so, to speak more fully upon these particular technical phases of the subject.

Other fallacious generalizations we are constantly confronted with relate to the prevalence of the disease, on the one hand, and the outlook or prognosis under treatment, on the other. In order to give to these questions a practical consideration, let us discuss them under two separate designations, namely:

1. Diagnosis: influence of early diagnosis upon

- the control of the disease.
2. Treatment: effect of modern treatment upon the prognosis.

It stands to reason that the greater the facilities for diagnosis of any malady the more general will be its recognition. Therefore, in estimating the prevalence and control of a malady, other things being equal, the greater the facility in diagnosis the greater its (known) prevalence; that is to say, with an increased percentage of efficiency in diagnosis, a certain allowance must be made for such in determining the question of increased prevalence. That this generalization leads to misconception in the case of syphilis there is no doubt, for improvement in sanitary control and restriction has advanced along with means of diagnosis. One author (2), referring to the control of syphilis, states: "That in spite of the enormous amount of work done to prevent its dissemination (during the recent World War) it has greatly increased throughout the world," a generalizing statement which tends to mislead, and to fortify the conclusion arrived at by the same author that: "Its control and reduction are the only conditions we can hope to strive for, as eradication is not within the realm of human possibility." When we stop to think (and I have been in a peculiar position to observe it) the very situation which provided enormous efficiency during the war applied, for the most part, only to military areas and the military régime, and was at the expense of the civil or home conditions, the latter in some instances being seriously disregarded. For example, the prevalence of syphilis in London and Paris and other civilian centres was emphatically demonstrated, as is likely to be the case, by the number of extragenital infections. I recall many personal cases. One, a young aviator, ordinarily of not too circumspect behavior, being strictly forewarned by his comrades against the dangers of the denizens of Piccadilly, who, in one of the most prominent hotels in London, was shaved by the hotel barber once only, it being the rule that he shaved himself, and the exception to this rule resulted in a chancre upon his chin. Another case was a young, innocent lad, who, in the language of

the times, had been with great fervor three times over the top. On account of temporary indisposition, he was assigned to clerical work away from the field of action; during this period he cut his lip while sealing an envelope and a chancre developed thereupon. Another soldier boy consulted me concerning a hard chancre on his lip. He was a member of a troop that was being mobilized and during the process of train transportation was besieged at different station stops by patriotic feminine enthusiasts, many of whom had seized the opportunity to embrace him. The conclusion is that the disease seemed to have become strikingly prevalent, not in spite of, but on account of, existing conditions.

On the other hand, the fortunate law of compensation or regulation, namely, the facilities for early diagnosis, should tend to lessen the dangers of increased prevalence by virtue of earlier control and prompt cures. That such is the tendency is signified by the favorable statistics obtained of cases proved to be positively syphilitic in the primary stage and submitted to early treatment. The demand, therefore, is most emphatically for early diagnosis, which is necessarily correlated with early treatment.

In times past the practice was in vogue, according to some teachers, of excising a chancre at its inception, the theory being that in such manner constitutional infection might be headed off and propagation prohibited. Today, what is considered very much more to the point is the adoption of the most reliable means of modern technic to establish early diagnosis, to the end of prompt and curative treatment which may be well nigh abortive, and in that sense as useful in fact as was the idea of excision of the chancre in theory. For this purpose, therefore, careful laboratory observation for the *Spirochæta pallida* should be practised, as we know that these organisms can be found locally in the majority of cases; while we cannot expect to obtain confirmation by a positive blood reaction until after the expiration of from six to eight weeks, a period that might well serve a most useful purpose in the interest of elimination, instead of being lost time and opportunity for the disease to become more deeply rooted.

Dark field illumination attachment to the microscope affords means of searching for the specific organisms and where special laboratory facilities are not at hand any observer may become proficient in this technic with a little experience.

Promotion of the practice of early diagnosis cannot be too strongly urged; but it must be stated with equal emphasis that the beginning of treatment for the constitutional disease before a positive diagnosis has been adequately established, cannot be too strongly interdicted. The unscientific method of making a diagnosis by a therapeutic test, or beginning treatment in advance of diagnosis, is so fraught with the possibility of complicating conditions that one has but to reflect upon a case to appreciate its danger. In one patient a suspicious lesion develops. He is engaged to be married. One medical observer calls it a chancre; another says it is not. Finally, a third says he does not know, but advises the use of specific medication to prove its character. The

result is obvious. The sore becomes well, but whether *post hoc* or *propter hoc* cannot be stated. Before the days of the Wassermann test this meant an absolutely indeterminate situation, so far as the social obligations of patient and medical adviser were concerned. Today it means the same, as our orthodox methods of treatment demand for the protection of the individual patient and of society at large, in the interest of the cure of the disease on the one hand, and the prevention of its propagation on the other, a series of negative blood examinations and more than one course of specific treatment, covering a minimum period of three, six or twelve months. That a conscientious medical adviser should beware of enforcing upon anyone this period of treatment and restraint, unless it is demanded by conditions warranting it, it is not necessary to dwell upon. Therefore, the rule should be: a positive diagnosis succeeded by immediate treatment. This applies with equal force to all stages of the disease. As has been set forth the proper course in the primary stage has become a more or less simple one. Nor is it less so in other stages provided positive blood reaction and positive clinical symptoms are existent; or one or the other of these evidences in sufficiently convincing degree. In the Wassermann test we have a guide of such high efficiency that it is beyond question the greatest of all agencies for the hopeful outlook of reducing the prevalence and in controlling the propagation of this ancient disease.

One observer (3) reports, from an examination of the blood serum in 3,000 cases, a conformity between two different laboratories in the Wassermann reaction of between ninety-three per cent. and ninety-four per cent.; while another skeptical observer (4) as late as May, 1921, rebukes scathingly the adherents of the high value of the Wassermann reaction; a third (5) gives a conformity between three serologists of about fifty-three per cent. These deviations of themselves do not mean anything beyond the apparent different degrees of technical efficiency and accuracy in different laboratories. We hear much about standardizing the Wassermann technic. There is no doubt that with advancement in knowledge and skill this valuable procedure is standardizing itself. It is not possible to place one hundred per cent. reliance on any one observation; there must always be a reasonable allowance for the unknown factor. Alignment of the clinical history and physical signs with the laboratory findings is what affords us the largest percentage of satisfactory diagnostic results. It would not be amiss besides favoring standardizing the Wassermann reaction to enter a plea for standardizing our intelligences in deciding the diagnosis of doubtful case of syphilis.

TREATMENT.

The second phase to be considered in the subdivision of the subject under discussion is treatment: the effect of prompt treatment upon the very important question of prognosis.

The diagnosis having been established beyond question, the most forceful measures of treatment that are known, in the light of modern advancement, most effectually to reach the invading parasites of the disease and cause their complete elimination, are

adopted. This elimination is accomplished by direct action upon the living organisms, and by producing conditions in the system under which these parasites cannot live.

The therapeutic agents that are known today to fulfill most completely these requirements are certain preparations of mercurial and arsenical composition. The modern arsenical compounds, formerly known as salvarsan and now comprised under the American appellation arsphenamine, are believed to possess a property of direct action upon the *Spirochete pallida*, in contradistinction from mercury, the action of which is thought to be indirect, by establishing unfertile conditions in the system. There is a possibility, however, that both of these agents possess similar properties, but to a different degree, and while much is made of the direct action of one or the other of these chemicals—the chemotropic effect—it is not to be discounted that the indirect or organotropic effect is equally important. In brief, the method of treatment to be adopted is more or less the same, whether it be in the primary undeveloped stage, the secondary active period, or the later or dormant stage, the difference being largely in the intensity and persistency with which the disease is attacked. Arsphenamine being administered intravenously and mercury hypodermically, the selection of the preparation may be largely one of individual choice within certain limits.

Modern substitutes for the original salvarsan, old and new, are of foreign and domestic manufacture, and have been universally adopted. They are marketed as acceptable substitutes, both because of chemical standardization and on account of favorable results obtained under their administration. The essential properties of low toxicity and high therapeutic potency have for the most part been attained.

For reasons of technic, the neosalvarsan or novosalvarsan preparation is employed principally. We find advocates of daily administration for three doses, of three injections on alternate days, and of four or five doses, given weekly. Each of these methods affords a high percentage of success. In the primary stage any of them may be employed. The last is the standardized method mostly in vogue, and the one preferred by the writer.

Of greater importance than the periodical dose of the arsphenamine course is the followup treatment with mercurial medication. This may be salicylate of mercury at weekly intervals, one and a half to two and a half grains at each treatment, or bichloride of mercury injections every second or third day, until fifteen to twenty of such doses have been administered, according to the constitutional effect. A subsequent course of salvarsan is always desirable. About six weeks after the last arsphenamine injection, a Wassermann test is made, and following this, whether the result be favorable or unfavorable, a supplementary arsphenamine course is administered, again followed by a mercurial series. This method of treatment, in effect, applies, as stated, to all stages of the disease. In general terms, the earlier the start the nearer the goal and the later the period the greater the necessity both for longer

observation and repetition of treatments. The extremes of treatment should be discountenanced. One is the original Utopian claim of *therapia sterilizans magna* which aimed at the complete eviction of all invading parasites at a single fell blow. The other extreme is illustrated by excessive persistency of therapeutic activity as chronicled by one group of observers (6) who, to demonstrate the limitation of the Wassermann test, treated a series of about 150 cases with the administration of arsphenamine and mercury every alternate six weeks for two years, and in the third year with two arsphenamine treatments. Under this superintensive method is reported a strikingly disappointing Wassermann relapse: in the early cases, a comparison between the three months' period and that of two years showed an increase in the positive reaction of nearly fifty per cent. In the late active cases there was a gradual increase in the positive Wassermann, until at the end of three years it was over fifty per cent. We hear it stated, on the one hand, that syphilis is never cured, a degree of pessimism that is fortunately controverted by both clinical and laboratory records. The opposite extreme, that one hundred per cent. of the cases of this malady may, if taken in time, be entirely cured, while not so far in excess of the truth, is still not yet substantiated.

We recognize certain facts from present day observation: first, that as compared with a half century ago, up to the beginning of the era of arsphenamine therapy, the disease, while less virulent in its surface manifestations upon the skin and mucous membrane, became more prevalent in the deep seated late recurrences affecting the arterial and cerebrospinal systems. Furthermore, that in line with the advance of laboratory technic and the great reliability of blood examinations, it was revealed that many cases of the disease thought to be cured were but temporarily inactive; that under the older form of treatment not over twenty-five per cent. of patients remained well or out of danger of late recurrences. Next, it may be reasonably stated that since the introduction of the modern measures of treatment—arsphenamine therapy combined with mercury—adequately conducted in the active stages of the disease, there is a fair probability that the previously unfavorable statistics were transposed, and that the victim of the disease gained at least a three to one chance of being freed completely of its contamination, and of being spared the menace of such late recurrences as threaten the vital organs, cripple the body and destroy the intellect itself. While under the earliest possible treatment, namely, as soon as diagnosis can be established in the primary stage, it is probable the danger of this great menace of the future, neurosyphilis, is minimized. In Johns Hopkins it is reported that in less than one per cent. of the patients symptomatic neurosyphilis develops; although a very substantial percentage, as already set forth, reveal a positive spinal fluid reaction in the secondary stage.

Assuming the truth of these statements, what is the conclusion? It has often been stated that the reason for the occurrence of nervous syphilis may be found in the strenuous conditions of modern business and social life, in the neglect of treatment,

and in various excesses. Yet, we all can recall examples, not one, but many individuals, who outraged every emphasized injunction and ran the pace that kills, who are, perhaps, derived from enervated stock, yet, who seem to get away with it without paying what would be called the price in the development of the degenerative form of the disease; while there are other individuals who have consistently followed the treatment laid down, who are phlegmatic, not neurotic, men or women, who have, in spite of apparently more favorable conditions, become incurable victims of both tabes and paresis. The existence of these contradictory cases is more noticeable under the ancient than the modern methods of treatment; yet, the paradoxical situation exists under both conditions. It may be that the explanation is biological, rather than neurological; that there exist certain strains of spirochete growth neurotropic in type, bred and inbred through generations of human media, that have developed special predilections for certain tissues. Be this as it may, the fact remains that the earlier the diagnosis, and the sooner that treatment is inaugurated, the better prognosis in the vast majority of cases. Therefore, we divide the prognosis into the various stages at which we recognize the existence of the disease. In the primary stage, when treatment is instituted promptly, prognosis is favorable in the highest possible percentage. In the secondary stage, when treatment is equally prompt and aggressive, the percentage of cures is, relatively, equally high. In the dormant and later cases, prognosis depends upon the persistence of treatment, the tenacity of the spirochete infection and the form that it has taken, namely, the extent of its development; which

means the character it assumes, and, therefore, the predilection that it reveals for the deeper structures of the different organs of the body, in form of gumma, sclerosis, and other conditions. By routine examinations of spinal fluid in connection with treatment and serological examinations better observation and control of our cases are instituted. This method intelligently exercised in conjunction with the proper measure of treatment affords the greatest insurance against the danger of later neurosyphilis. It is remarkable what favorable changes are wrought by the modern form of treatment, persistently used. This applies to the respiratory, cardiac and digestive systems. When the disease attacks the cerebrospinal system, the outlook is far less favorable, and favorable in inverse ratio to the duration of such infection; but even here, before degenerative processes have set in, it is possible to accomplish what, under the old methods of treatment, was considered to be an impossibility.

In conclusion, when we review the great progress beyond the past in the knowledge and attainment of the present; when we weigh the possibilities of further progress, it is difficult to doubt that the future is radiant with hope for the achievement of the practical control of syphilis.

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On the Two Fundamental Forms of Syphilis*

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Under the overwhelming influence of the important advances that have been made in recent years in our knowledge of syphilis, both as regards pathology and treatment, some fundamental truths acquired in the experience of a bygone generation have been, as it were, submerged. French physicians, notably Fournier, many years ago drew a sharp distinction between what was recognized as ordinary syphilis with its surface lesions of skin and mucous membranes or its gummatous exudations in the deeper structures, and another form of syphilis which Fournier called parasyphilis. The term parasyphilis was especially applied to tabes and paresis. Of late years writers upon syphilis have ignored this distinction as though all syphilis both as regards pathology and treatment were the same. It has been forgotten, for instance, that all syphilis of the cord is not tabes and that all syphilis of the

brain is not paresis. Surely it should not seem necessary to point out that in their symptomatology these two forms differ widely from each other. In gummatous syphilis of the brain, for instance, the predominant symptoms are headache more or less continuous and severe, somnolence, optic neuritis, gross and pronounced palsies of cranial nerves, together it may be with hemiplegia, unilateral or crossed, while mental symptoms are notably absent. Here the lesions consist of coarse gummatous deposits and infiltrations in the walls of the vessels and in the membranes, without any invasion of the brain substance, the parenchyma, by the spirochete. In gummatous syphilis of the cord again the symptoms are those of a paraplegia spastic in type though in a given number of cases ataxic symptoms are added; there are also slight sensory losses and characteristic bladder disturbances; first an early impairment of the power of expulsion and later of retention. The symptoms, too, as is notably the case in visceral syphilis, are asymmetrical, both the

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motor symptoms and the hypesthesia being more marked on one side than on the other. The spasticity also presents the peculiarity of disappearing or becoming greatly diminished when the patient sits down. Notably is there an absence of tabetic or lightninglike pains.

How great a contrast both of these clinical pictures present with those of paresis and tabes! In paresis there is, especially, the slowly oncoming and gradually increasing dementia. There is tremor of the hands, lips and tongue, facial twitching, ataxic speech, unequal, irregular, sluggish or Argyll Robertson pupils, slightly ataxic or spastic gait, slight or fugacious pareses of the cranial nerves; perhaps a history of transient hemiplegias or possibly of epileptiform attacks. Surely this is a very different picture from that seen in gummatous syphilis of the brain. Gummatous syphilis of the brain, I should add, is, because of the usual absence of mental symptoms, rarely met with in the asylums.

The contrast between gummatous syphilis of the cord and tabes is equally great, as a momentary reflection upon the triad of symptoms, the ataxic gait, the loss of knee jerks and the Argyll Robertson pupil, clearly indicates.

The clinical histories of the two forms of syphilis also differ widely from each other. Of the truth of this a large clinical experience, embracing the service of many hospitals and extending over many years, convinces me. The facts were long ago noted by the French, and with myself they have become truisms. It is a rare thing, for instance, in a case of paresis or tabes to elicit a clear history of an initial lesion. In regard to paresis it might be maintained that the mental condition of the patient is such that the early history is unreliable, but this cannot be asserted for tabes, in which the mental condition is in the large majority of cases unimpaired. At most, I have occasionally elicited in a tabetic a history of a lesion that was doubtful in character; often one that was considered as a mere abrasion and quite commonly as of little consequence. Quite commonly, too, it is impossible to elicit in a tabetic and still less in a paretic a history of secondary syphilis. Rarely can any account be obtained of any lesions of the skin or mucous membranes, falling out of hair, sore throat, etc. In the few instances in which such a history can be elicited, the account is always of secondary manifestation, slight, inconsequential, and attracting little attention. Not infrequently the patient was spoken of as having had an attack of so-called mild syphilis. In keeping with these facts there is a notable absence of scars upon the genitals or of the obvious results of gummatous lesions elsewhere; for instance, I have never seen a tabetic or paretic with a deformed, an indented or sunken nose, the result of syphilitic lesions of the nasal septum, nasal bones or cartilages.

These facts suggest a possible difference in the character of the infection in the two forms, the gummatous and the parenchymatous, as I believe they should be called. In keeping with this view, we find a number of confirmatory facts most significant in their nature. Every now and then, for

instance, we meet with instances of so-called conjugal paresis or conjugal tabes. Both husband and wife in such cases suffer from paresis or from tabes. While I have seen a number of such instances, I have never met an instance in which one marital partner suffered from paresis or tabes and the other from gummatous syphilis. Gummatous syphilis—syphilis of the exudative form—I have met with in husband and wife many times and less frequently I have seen parasyphilis, the parenchymatous form, in husband and wife but never, may I repeat, the two different forms. It has always been the same form in both. Certainly an experience such as this now extending over many years can have but one meaning. Of the same significance are the cases in which a number of men were infected from the same source and all suffered from the same form of syphilis. For example, there is the well known instance reported by Morel-Lavallée and Bélières in which five men were infected by the same woman; all acquired paresis, and to this number Ramadier added a sixth. Another instance is that recorded by Brosius in which seven glass blowers were all infected by the same mouth piece; five were attacked by paresis or tabes while the remaining two presented suspicious symptoms. Is it not remarkable that here again we find syphilis of one form only instead of finding in some of the patients gummatous syphilis and in the others parasyphilis? Similar experiences have been placed on record by Nonne, Marie, Bernhard, Erb and others while I myself have added conjugal cases to the list.

Recently Levaditi and Marie (1) in a study of the treponema of general paralysis have restated the fact—a fact long previously known to the earlier clinicians—that syphilis begins and evolves in the future paralytics and tabetics in a manner rather benign and that the primary lesion is fugacious, that the secondary symptoms are ephemeral or nonexistent and that tertiary cutaneous and visceral lesions are exceedingly rare.

The experiments conducted by Levaditi and Marie upon monkeys and rabbits are most remarkable and demonstrate in a most convincing manner—indeed, prove beyond all question—that in syphilis there are two viruses, two different strains of spirochetes, which result in two different diseases, one the gummatous form of syphilis and another which gives rise to parasyphilis. The first they term the dermatropic form, the second the neurotropic form. I myself believe that the expressions gummatous syphilis and parenchymatous nervous syphilis would clinically be more useful.

Levaditi and Marie have shown that these two forms differ greatly as regards the initial lesion both in the period of inoculation and the appearance of the lesion. Their experiments showed that in the neurotropic (the parasyphilitic) form the average period of inoculation was very long, i. e. 127 days or more than four months though this period was shortened in consecutive effectual transmissions. In the dermatropic (the gummatous or exudative) form, on the other hand, the period of inoculation was about six weeks.

Again in the neurotropic form the initial lesions were superficial, comparatively slight; in the

dermatropic form the lesions were far more pronounced and presented an indurated and cartilaginous base. In the neurotropic form the microscopical examination revealed a thickening and infiltration of the papillae and the most superficial of the layers of the derma together with superficial ulceration; in the dermatropic, the gummatous form, on the other hand, the microscopical examination revealed a marked endarteritis and infiltration, intense invasion of the deep tissues and new connective tissue formation especially marked in the portions presenting cartilaginous induration.

Further, Levaditi and Marie found that in the neurotropic form the treponema is especially found in the epithelial layer, while in the dermatropic (the gummatous) form the treponema is especially found in the true dermal layer and about the vessels. The appearances are the same as those found in the human Hunterian chancre. A marked difference in the virulence of transmission was also noted; the latter was much less in the neurotropic than in the dermatropic form. In fact, the spirochete of the neurotropic form soon loses its virulence, while in the dermatropic form this virulence is preserved. How suggestive these results are when compared with the facts of clinical experience especially as to the feebleness of contagion of the neurotropic form!

Finally, the experiments of Levaditi and Marie as to crossed immunity are absolutely conclusive and establish definitely the distinction between the two forms of syphilis. They show that in syphilis we have *two different diseases* to deal with. Inoculation with one form of treponema does not prevent successful inoculation with the other; animals inoculated with one form acquire a refractory state in regard to this form but not to the other. Perhaps this explains the puzzling statement occasionally made by patients that they have had the initial lesion twice. Formerly, I used to explain these statements to myself by supposing that one lesion was either spurious or a chancroid and that only one was a true syphilitic lesion. The discoveries of Levaditi and Marie make entirely possible the occurrence of two separate and distinct syphilitic infections in the human subject.

Personally I am convinced that further advance both in our knowledge of syphilis and in our treatment of these two diseases is to be made by biological studies and researches. The facts already in our possession are most interesting and also most suggestive as to the possibilities of combatting the disease and as to new and radical departures in treatment. Chemotherapy in syphilis has already reached its limitations. Especially is this true in the case of parasyphilis. Tabes and paresis, especially the latter, are still largely beyond our control. All save those blinded to the facts or carried away by an enthusiasm uncontrolled by a dispassionate consideration of the facts, will frankly admit the truth of this statement.

The biology of the spirochete is briefly as follows. The spirochete is a protozoan; it is not a bacterium. It belongs to the proflagellata. Many species have been described. Spirochetes are widely distributed; they are found especially in decomposing and foul waters, in the ditch water of swamps and moors,

in latrines, in ulcerating wounds and sores, in the blood and in almost all the tissues in certain diseases of man and other animals. They have also been found in fresh and salt water, and in the intestines and on the mucous membranes of healthy animals.

It is, to say the least, very significant that many of the nonparasitic forms are found living as saprozoic organisms in liquids which are rich in organic substances; e. g., foul waters containing decomposing vegetable and other organic materials. As just stated, some are found living on the mucous membranes of healthy animals. Have we not a hint here as to the possible origin or development and adaption of the form so destructive to the human organism?

Doflein (2) groups the spirocheta as follows:

- Dwellers in body cavities (mostly harmless boarders).
- Dwellers on the surface of normal mucous membranes.
- Dwellers in ulcerating sores and inflamed mucous membranes.
- Tissue parasites.
- Blood parasites.

Two questions here suggest themselves: first, how did the *Treponema pallidum* acquire a habitat in man? secondly, why is it that man is the only animal that is vulnerable to it? Outside of the laboratory syphilis occurs spontaneously only in man. What are the reasons? With the exception of monkeys and rabbits in whom the inoculation is only accomplished with difficulty and under limited conditions, inoculation has only been successful, doubtfully and in a few instances, in dogs, sheep, goats, cats and pigs; never in cattle and never in the horse. The horse suffers from a spirochetic disease of his own dourine, but not from human syphilis.

Does it not seem that other animals enjoy an immunity from the *Treponema pallidum*, an immunity not granted to man, because of the presence of some substance—a normal antitoxin—in the blood not present in man? Is not the final conquest of syphilis after all to be serological?

Further, some of the other facts in our possession are also most suggestive. First the *Treponema pallidum* has no power of reducing proteins; it is absolutely without proteolytic action. In other words, in order that it may live other organisms must always be present. The difficulty and repeated failures in endeavoring to maintain pure cultures are conclusive proof of this. Again, the treponema is anaerobic and it appears therefore that for its oxygen metabolism it is dependent on other organisms. Marie and Levaditi, it is true, were able to grow cultures of the treponema in collodion containers but they were obliged to immerse these containers in a culture of an aerobic bacillus. It would appear that the treponema is an organism of feeble vitality, easily destroyed. Do not these facts justify the hope of new methods of attack?

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1719 WALNUT STREET.

Observations on the Diagnosis of Neurosyphilis*

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* It is my intention in this paper to confine myself mostly to the diagnosis of syphilis, and in particular to the problem presented by syphilitic involvement of the neuraxis.

The concurrence of visceral syphilis with neurosyphilis is appreciated by those of us who see many cases of the latter, but do we realize the frequency with which this occurs? The incidence as estimated in secondary syphilis is about twenty to thirty per cent, and in tertiary syphilis from thirty-five up to fifty per cent. I believe these early cases of neurosyphilis occurring as an accompaniment of secondary or early tertiary lues are the tabetics or paretics of a decade later. But how are we to diagnose the cases of central nerve involvement, many of which, especially in the early and curative stage, show no sign suggestive of nerve tissue destruction? Spinal puncture is the one diagnostic procedure of greatest value in these cases.

The serological examination of the spinal fluid reveals things which are of importance in the diagnosis of neurosyphilis. An increased globulin, while not diagnostic, indicates inflammation within the subarachnoid space; a positive Wassermann reaction indicates the presence of syphilis, and is, of course, absolutely diagnostic, but the strength of the Wassermann test does not parallel the virulence of the neural infection, some cases of active neurosyphilis having a one plus or a negative reaction. However, I am told by the laboratory workers that cases of general paresis usually have a very strong reaction, best exemplified by a five plus reaction.

In the cell count and colloidal gold curves we not only have aids to diagnosis of neurosyphilis, but also help in differentiating the numerous types of this disease. As a general rule it can be intimated that the number of cells is a rough estimate of the amount of meningeal involvement. From this we can predicate that those with low cell counts are apt to show a maximum amount of parenchymatous nervous tissue destruction, such as the long standing cases of tabes with little pain but much ataxia, the spastic paraplegias, and also paresis, while those with cell counts above fifty or seventy-five are the meningeal types, such as basilar meningitis, gummata, tabes with pain, etc. It is also these latter types in which treatment is of maximum benefit.

The colloidal gold reaction is obtained in a number of other inflammatory diseases of the central nervous system, and for this reason is not, as was thought when it was first introduced, diagnostic of tabes, paresis, or cerebrospinal lues. A curve which rises higher than two is definitely pathological and indicates the presence of some inflammatory products in the fluid of a lipid or protein nature. Curves of the stepladder or so-called paretic types with complete decoloration in the first few tubes are found in poliomyelitis, epidemic encephalitis, and disseminated sclerosis. In neurosyphilis a paretic curve is

always suggestive, but not always diagnostic, it being found in some vascular types which have neither the physical signs nor the course of paresis, and yield readily to treatment. Decoloration of the tubes in the midzone of the curve, the so-called tabetic or luetic curve, is even less diagnostic of tabes, for any type of neurosyphilis is apt to give this, and any infectious or toxic condition involving the central nervous system is likely to produce a rise in the curve of the midzone. It is interesting to note that by the addition of varying quantities of blood to normal spinal fluid it has been possible to reproduce almost every type of colloidal gold curve. One can see, then, that like many of the laboratory examinations the colloidal gold curve cannot be relied upon for a diagnosis, but a pathological curve combined with the other serological tests and clinical examination is at times invaluable.

Briefly, I should like to mention two unusual types of neurosyphilis which occur with sufficient frequency to warrant mention, namely, those in which the clinical examination is entirely negative, with a positive serology, and those in which there are clinical signs of luetic central nervous involvement, with negative serology. The latter demand treatment as well as the former, but the cure can be gauged only by the clinical condition. The occurrence of neurosyphilis in an active or latent form is common in congenital lues, and it is my opinion that every case of the hereditary form of the disease should have a spinal puncture.

The percentage occurrence of neurosyphilis is so high that I also feel that before discharging a case of syphilis as cured a spinal fluid examination should be made. This is also imperative in those Wassermann fast patients whom we occasionally see.

Of much importance in the diagnosis of neurosyphilis is the examination of the central nervous system. The syphilitic eye is, barring epidemic encephalitis, practically pathognomonic of the disease, and its characteristics are, as you know, irregular pupils which are unequal and do not react to light, but do react to accommodation—the Argyll Robertson pupil. A paralysis or loss of function of any of the cranial nerves is a common occurrence. Alteration in the reflexes, and the presence of typical or shooting, indefinite rheumatic or neuritic pains in the legs may be present. Bladder symptoms are often one of the early signs of spinal cord involvement. The occurrence of mental episodes and convulsions in paresis, of vascular crises, such as apoplexy, or spasm in vascular neurosyphilis, and a host of other signs and symptoms which it is not within the scope of this short discussion to enumerate, all point to a luetic neuroaxial disease.

In closing, I should like to emphasize again the frequency of neurosyphilis and the value of spinal puncture as an aid, not only for diagnosis, but to guide one's treatment.

74 WEST FORTY-EIGHTH STREET.

*Read before a meeting of the Bellevue Alumni Association.

Diagnosis of Late Hereditary Syphilis and Lupus in Otorhinolaryngology

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Syphilis and tuberculosis both present a variety of clinical manifestations, but if some of them have sufficiently obvious characteristics for positive diagnosis, others may not be so easily classified, such, for instance, as hereditary syphilis and chronic tuberculosis of a lupous character. In some cases we have to deal with lupus, which may be found at any age, but most frequently in adult females. The injured organs are, in order of frequency, the nose (nostril vestibule and cartilaginous septum), the larynx (chiefly the epiglottis and the arytenoepiglottic folds), the pharynx (more frequently on the pillars than on the soft palate), and the external and internal sides of the cheek. In other cases we are in the presence of late heredo-syphilitic manifestations. These occur in childhood and adolescence, between the ages of eight and twenty-five, and are particularly to be met with on the soft palate, in the nose, the arch of the palate and the back partition of the pharynx.

COINCIDENCE.

Syphilis and lupus may also coexist in the same person, and appear in the form of syphilitic manifestations in the pharynx and nose, and lupus in the larynx and epiglottis. Finally there are cases in which one may well suppose that syphilis and tuberculosis combine on the same part of the body, thus forming a mixed manifestation, a luposyphilitic hybrid, the anatomical seat of which would be in the nose, pharynx, soft palate and on the root of the tongue and epiglottis.

The diagnosis is often extremely difficult; it is even impossible without the help of the laboratory. We shall now review the various elements which may help to form an opinion, and that Arlet, our pupil, has very aptly set forth in his thesis (Bordeaux, 1921).

CLINICAL DIAGNOSIS.

During the period of induration, the gumma and lupus have quite different symptoms.

The gumma, whatever its seat may be, can be diffuse or limited. In the latter case it presents itself as a reddish tumor, smooth, even, localized, of a hard consistency at first, then renitent and even soft.

In cases of lupus a distinct discoloration of the mucous membranes, and chiefly of the soft palate, is first noticed. The injured tissue is strewn with small reddish granulations which appear on an infiltrated, rosy and softened mucous membrane, gradually mingling with the healthy parts.

During this first period the general symptoms of syphilis and lupus are insignificant and the functional symptoms are identical; the pain is practically nonexistent. According to the place of the lesion, a sense of fullness in the nose, nasal quality of

speech, difficulty in deglutition or breathing, if the tumor is in the larynx, may be observed.

This period of induration does not last long in cases of syphilis; the gumma softens rapidly and becomes pitted with small craters, which gradually unite and form a more or less extensive excavation with anfractuons, red, projecting, abrupt edges and a greyish squalid bottom, resembling the core of a boil—thus causing an ulceration of the serpigineous kind, which quickly extends to the surrounding parts of the membrane and, owing to its rapidly destructive process, involves loss of substance often considerable and irreparable.

Lupus has also a period of softening and ulceration, but the process is slower and the ulcerations it causes are often smaller, less destructive than those of syphilis, with more irregular edges, of a violet color, thinner and without clear demarcation with the healthy parts, on which may be seen the small yellow granulations peculiar to tuberculosis (yellow spots of Trélat).

The bottom of the ulceration, which is not so deep as in syphilis, is covered with a small quantity of a greyish secretion and sometimes with small scabs of a barley sugar color and soft consistency.

During this second period functional symptoms are more important and attract the attention of the patient to a greater extent. In cases of lupus, the pain which is so little at first, becomes stronger in the various movements of deglutition. The patient blows a few small yellow scabs out of his nose, is hoarse and expectorates a small quantity of grey substance. Adenopathy always exists. In syphilis the melting of the gumma and its discharge are manifested by the blowing out or expectoration of sanious matter tinged with blood.

The respiratory disorders are in both cases often insignificant, but may be given a considerable intensity by the edema of the larynx. In syphilis the sensitiveness of the back part of the throat is blunted, whereas with tuberculous people all laryngoscopic examination becomes difficult and causes violent fits of a distinctive sort of coughing.

COURSE OF DISEASE.

Finally, as regards its progress and evolution, syphilis may otherwise be distinguished from lupus, inasmuch as syphilis develops more rapidly, and causes much more important destructions, which have very little tendency to heal if they are not attended to. Lupus develops into nodular, pale, and retractile scars, while the injuries caused by syphilis remain as a stigma of the preexisting lesion, and its ulcerations are transformed into starshaped scars, sunken, of a fibrous aspect, with a yellow bottom, the pale color of which contrasts with the rest of the mucous membrane.

CLINICAL MANIFESTATIONS.

The clinical symptoms we have just reviewed are sufficiently marked in most cases to justify a diagnosis of syphilis or lupus, chiefly during the induration period; but the confusion becomes possible in the case, 1, of ulcerations consecutive to the gumma, which assume a torpid aspect when they are not dealt with; 2, of lesions in a person in whom syphilis and tuberculosis coexist; 3, of hybrid luposyphilitic manifestations.

What is, then, the aspect of these lesions? The mucous membrane generally loses its color and much of its sensitiveness. The ulceration may hold a large area and extend over several anatomical regions at the same time (soft palate, pillars and larynx for instance), being superficial in places, deeper in others, with a greyish bottom sometimes, but having in most cases a great quantity of granulations. Its edges are well marked in some parts, not very clear elsewhere, jagged and giving a sensation of softness when touched or sometimes feeling like a hard infiltration, similar to cardboard.

The sensitiveness is frequently lessened; these lesions are painless and are very irregularly attended with adenopathy. They develop slowly, insidiously, without the knowledge of the patient himself, and are often discovered only after a minute examination, and many times in the course of another disease. This, we must add, unless they have already caused a destruction of the soft palate, which is characterized by the nasal quality of speech and the flowing back of liquids through the nose, or unless the epiglottis should have been entirely eaten away and could no longer fulfil its function. In the latter case the deglutition of food (mostly liquid) is attended with fits of coughing caused by its introduction into the windpipe. This symptom, however, is very rarely observed, for after an epiglottectomy (amputation of the epiglottis) or the total disappearance of the epiglottis consecutive to an ulceration, the root of the tongue does the duty of the epiglottis in stopping the windpipe during deglutition.

All these clinical symptoms of hybridity can give only an induction of probability. After having, therefore, thoroughly examined the lesions, one must take into account all the information that may be provided concerning the patient, the very ground, that is, in which the lesions have developed.

The certainty that one has to deal with an heredo-syphilitic person, acquired from information given by the progenitors concerning themselves or their collateral relations, may justify the hypothesis of a syphilitic lesion. But one often finds a scrofulo-tuberculous diathesis, in which the tuberculous antecedents are not rare, being sometimes limited to small lesions in the father and mother, and also hereditary antecedents in the family—brother or sister having ganglionic tuberculosis or having died from meningitis.

Among hereditary antecedents one must also take into account alcoholism as favorable to scrofulous manifestations. Personal antecedents are also of importance, according to the age of the patient, in tracing an acquired syphilis or detecting scars

left by small ganglionic or osseous tuberculous lesions, although sometimes syphilis, and in particular hereditary syphilis, simulates so well osseous or ganglionic tuberculosis that one can be mistaken.

Finally, Hutchinson's triad must be looked for: ocular, dental and auricular manifestations. But these being rarely met together, a fourth symptom should be taken into account, which is more frequent and may now be ascribed to hereditary syphilis, namely, hyarthrosis. It will not be, therefore, a triad, but a tetrad which will guide us.

All this shows that the means which the clinician possesses are excellent, but insufficient for a precise diagnosis. It is absolutely necessary, therefore, to make systematic inquiries as to the possibility of an exact diagnosis based on the reports of the laboratory.

LABORATORY DIAGNOSIS.

The laboratory has various means of detecting tuberculosis or syphilis and relies on tests bearing on local manifestations or tests of a general kind.

Laboratory tests for the diagnosis of tuberculosis.

—1. Related with local manifestations: a, histopathological examinations; b, discovery of the causal agent; c, inoculation of animals.

2. Of a general kind: a, serodiagnosis; b, reaction to tuberculin.

Histopathological examination.—We admit that the microscope cannot in every case give unequivocal answers and sometimes it is extremely difficult to obtain a precise result. But generally it is not the microscopic examination which is incomplete, but the sample which is bad, on account of an imperfect process of biopsy. This leads us to say a few words about this process.

It may easily be understood that the anatomopathologist can describe only the structure of the fragment which is given to him, and nothing else. He must receive, therefore, a fragment suited for the examination. The laboratory receives too often the scrapings of a mucous membrane, removed no matter where or how. To have an accurate microscopic diagnosis it is absolutely necessary to be able to place the fragment in a convenient position so as to make sections showing the various planes from the surface to the deeper parts, the relation of the tissues to one another, and the cellular arrangement, which is not possible with a scrap of membrane removed tangentially to its surface and more or less lacerated. It is necessary that the fragment should not be spoiled or crushed by the instrument with which it is removed, so that the structural elements may have in the section the same disposition they had on the patient.

Our aim is then: 1. To take the sample in the tumor itself; 2, to have an undamaged biopsy and one of sufficient importance to allow a thorough examination.

MICROSCOPIC FEATURES OF TUBERCULOSIS.

What are, now, the distinctive microscopic features of tuberculosis? Tuberculosis is a disease which finally consists in the formation of an infectious follicle. In the centre of the follicle, which is the elementary lesion, the microbe has fixed itself (bacillus of Koch, the origin of the infection) and

is enclosed in an enormous element, the giant cell. This giant cell, irregular in shape, is composed of a mass of granular matter, which contains a varying number of nuclei of different forms. These nuclei are disposed near the surface of the cell, which, in a section of its middle part, seems to be encircled as it were by what seems to be a crown of nuclei.

Round this giant cell the elementary follicle is filled by a stratum of big polygonal cells, containing one and sometimes two big nuclei, i. e., the epithelioid cells. In the outer part is a second lymphoid zone composed of small lymphocytes or mononuclear cells. Those elementary follicles agglomerate in granulations rich in giant cells and quickly invaded by caseous degeneration (owing to the action of the toxic substances elaborated by the bacillus of Koch) which may not enable us to recognize at any point the trace of a previous typical nodular process. The bloodvessels and lymphatics share in the disorders which surround them, without having at first a predominant place in them, the presence of a vessel being in no way necessary to the growth of a tuberculous lesion.

Discovery of the bacillus of Koch.—This will be made either in the fluids exuded, those being spread and stained with Ziehl solution used hot, or in the tissues after having colored the sections with Ziehl used cold during thirty minutes. But the test is rarely positive in nodular tuberculous lupus and, consequently, throws but little light on this particular question.

Inoculation.—In a series of guineapigs inoculation followed by an autopsy to discover the bacillus of Koch is a process of great value. It is sufficient to take—in an aseptic way—some of the serosity on the ulceration by means of a syringe and to make a subcutaneous injection in the inguinal region.

One may also, after a biopsy (if the inoculation cannot be made immediately, the specimen is kept in physiological serum) introduce aseptically the fragment in the subcutaneous cellular tissue of the abdominal region, after having made a small incision with a bistoury. To find, after about six weeks, a tuberculous chancre on the point of inoculation, or to find that the animal dies of diffuse tuberculosis and to discover the bacillus of Koch in the regional ganglia or the viscera, are absolute signs of tuberculosis, but the converse is not true and a negative inoculation does not allow of the rejection of the hypothesis of tuberculosis.

SERODIAGNOSIS OF TUBERCULOSIS.

The method used by Arloing and P. Courmont in the serodiagnosis of tuberculosis is an excellent one based on a principle similar to Widal's reaction (serodiagnosis of typhoid), but in the case with which we are concerned, that is, with lupus, the process is too often negative to be of real value. The reaction of the antigen of Portmann enables one to trace tuberculosis in exudations and secretions. It may be used whenever, in the course of researches for the stigmata of heredosyphilis, one is in presence of hyarthrosis, for instance, to know if the fluid contained in the articular serous membrane is of a tuberculous nature.

Encouraged by the happy results obtained up to the present day with Besredka antigen in lesions going through evolutions and in the torpid forms of tuberculosis the diagnosis of which is uncertain, we shall do well not to neglect this reaction which will often enable us to trace the latent tuberculosis which may be present.

Tuberculin reaction.—Of the three methods (cutaneous, intradermic and ophthalmic reactions) ordinarily used for the differential diagnosis of tuberculosis and tertiary syphilis, one only may give some results. Augagneur has shown that, with the exception of the ophthalmic reaction, tuberculin tests applied to syphilitic people gave positive results tallying with those obtained with tuberculous persons. So that, as Bernay says, one may draw the conclusion, with Goelinger, Nicolas, Favre, Charlet and Augagneur, that syphilitic persons having no tuberculous lesion react as well to tuberculin as averred tuberculous subjects as regards the cutaneous and intradermic reactions. The ophthalmic reaction alone would show a slight difference.

LABORATORY TESTS USED IN THE DIAGNOSIS OF SYPHILIS.

I. Related with local manifestations: 1, Histopathological examination; 2, discovery of the causal agent; 3, inoculation of animals.

II. Of a general kind: 1, Serodiagnosis; 2, intradermic reaction to syphilis; 3, cytology of the cerebrospinal fluid; 4, blood cytology.

Histopathological examination.—Syphilitic lesions finally consist, like tuberculosis, in an elementary infectious follicle. The spirochaetae, which are the pathogenic agents, are phagocytized in a specific giant cell which differs in no way from a tuberculous giant cell: same central accumulation of caseous aspect, same abundance of elongated nuclei, various in shape, same crown arrangement and same protoplasmic edge. Round the central giant cell, the zone of epithelioid macrophagi may be the same as in the tuberculous follicle, also the outer leucocytary edge; and the same necrotic disaggregation of caseous nature may destroy the elementary follicle.

The disorders are often much less typical; the giant cells are frequently missing in the centre of the elementary syphilitic follicles, as well as on the periphery of the nodule, whether because they have not been able to form or have disappeared under the influence of caseous necrosis. The capillary vessels and the lymphatics included in the pathological region show the signs of a marked cellular irritation and their vent is often thrombosed.

Discovery of the treponema.—The infectious agent of syphilis (*Spirochaeta pallida* or *Treponema pallidum*) may be looked for in spread fluids exuded from the ulcerated regions as follows:

1. Unstained, by ultramicroscopic examination; it appears in the form of a thin, refracting filament, very bright and mobile in the fluid.

2. Stained with Giemsa blue, it shows pale rose and often also blue.

3. Stained by the Fontana-Tribondeau method, it stands out black on a brown background.

The treponema may also be looked for in the tissues by staining a fragment in the mass with nitrate

of silver according to the Levaditi-Manoudian process; it shows black on the brown tissues. The most successful method of inoculation in animals is that used with superior apes, by scarification. It may also be done in the anterior chamber of the eye of the rabbit, but it almost always fails in tertiary syphilis.

METHODS OF SERODIAGNOSIS IN SYPHILIS.

The methods of serodiagnosis are numerous: Bordet-Wassermann reaction; various biochemical methods which are only simplifications of the former; chemical reaction of Noguchi; of Schurman, based on a staining reaction; colloid benzoin reaction of the cerebrospinal fluid; formal jellification, which cannot yet be trusted, although the results are quite concordant with those of the Bordet-Wassermann reaction; and reaction of Sachs-Georgi, the easy and economical execution of which may be carried together with the Bordet-Wassermann process to throw light on some dubious cases, although it must be noticed that the concordance of results is less frequent for hereditary than for acquired syphilis.

Of all these methods only one deserves to be taken seriously, that is the Bordet-Wassermann process. Although its specificity has been questioned, the serodiagnosis is positive in seventy per cent. of averved cases of syphilis. We may then admit the practical value of the Bordet-Wassermann reaction in blood or the cerebrospinal fluid. In most cases a positive reaction enables to affirm syphilis, but a negative one does not allow of the rejection of the hypothesis of syphilis.

Intradermic reaction to syphilis.—This is a method described by Nicolas, Favre, Gautier and Charlet. The cutaneous reaction has given no results; the intradermic reaction alone has shown results parallel to the Bordet-Wassermann process, but the value of this method has not yet been ascertained.

Cytology of the cerebrospinal fluid (Studies of Widal, Sicard and Ravault).—Some information may be obtained by this method in secondary syphilis; but the results are still doubtful in tertiary syphilis.

Cytology of the blood.—Blood lymphocytosis, according to the researches and conclusions of Mazza, cannot be considered as a sign helping to the diagnosis of syphilis any more than to the diagnosis of latent tuberculosis.

In short, laboratory tests are very numerous; but a few of them only enable one to make a positive diagnosis of syphilis or tuberculosis.

NEW METHODS.

We know what importance can now be lent to the giant cell for the differential diagnosis of tuberculosis and syphilis. The giant cell, as the pathological entity of tuberculosis, has had its day. The works of Nicolas and Favre and of Georges Dubreuil are convincing enough on the subject.

P. I. Elizalde gave an interesting report in September, 1920, to the Society of Biology of Buenos Aires, enumerating the distinctive features of the granulation tissues of tuberculosis and syphilis in necrotic lesions.

He says: "The action of the tuberculous bacillus and that of the treponema, are essentially different. The tuberculous germ creates necrosis by the bacillary substance which attacks the cells holding it, then diffuses round and injures the neighboring cellular elements. The necrosis of syphilitic caseification has always its cause in a vascular obliteration. Syphilitic giant cells, on the other hand, are not a centre of attraction for the other cellular elements, as is the case for the tuberculous giant cells. In a word, the difference between syphilitic and tuberculous lesions is not shown by a separate cellular element, but by the examination of the characteristics of all the cells."

The distinctive features noted by P. I. Elizalde may sometimes be met with in typical cases of syphilis and tuberculosis, but we have not found them in the lesions that we have examined. The inoculation of apes and in the anterior chamber of the eye of rabbits are costly processes, which give doubtful results, chiefly in tertiary manifestations. The discovery of the treponema is quite uncertain and the reaction of Bordet-Wassermann sometimes deceitful, but these two processes alone, when the reaction of Bordet-Wassermann is positive and when the treponema is seen either in the tissues or in the exudates, it is possible to make an unequivocal diagnosis.

Of all the methods of discovery of tuberculosis, the various reactions to tuberculin have no interest for us, since they are as often positive in cases of syphilis as in cases of tuberculosis. The bacillus of Koch is not at all easy to detect, and is very rarely found in lupus; but it is enough that it should be discovered to be certain of the tuberculous nature of the disease. Similarly the positive inoculation of guinea-pigs still holds its absolute value, but a negative inoculation does not prove the absence of tuberculosis.

CONCLUSIONS.

The diagnosis of late hereditary syphilis and of lupous tuberculosis is often extremely difficult, even with the help of the laboratory. Still it is essential to gather all the information that can be given by the laboratory, so as to obtain as much certainty as possible and not call too hastily *scrofulate de vérole* a lesion which is only syphilis or tuberculosis.

Hybrid cases of syphilis and tuberculosis are most rare for out of 50,000 observations in the course of fifteen years (1900-1915) at the otorhinolaryngology department of the University of Bordeaux, only five cases are found to be diagnosed *scrofulate de vérole*, without, besides, the assurance of the laboratory.

But in four cases personally followed since that time and which clinically seemed to be luposyphilitic hybrids, thorough laboratory researches have shown that one case was tuberculosis of a lupic form, and the other three were cases which proved to be late hereditary syphilis.

It is needless to insist on the importance of establishing an accurate diagnosis to avoid the disasters of inopportune therapeutics (noxious influence of a biocide treatment in some tuberculous lesions, for instance).

Transmissibility of Syphilis in the Latent Stage and Insufficient Treatment of Early Syphilis*

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Latency in syphilis may be regarded as a sort of balance between the defensive mechanism of the host and the virulence or aggressiveness of the spirochetes. This balance can be upset at any time as a result of whatever accident may throw the balance of power one way or the other. In this manner it happens that the organisms break loose, from time to time, from their hiding places and cause fresh invasions. This explains the occurrence of tertiary symptoms after many years of latency. It also explains why a patient with latent syphilis may infect others, in spite of the fact that he may have been symptomless for many years.

That latent syphilitic patients harbor spirochetes and are capable of infecting others has been sufficiently demonstrated. Savnick (1) found spirochetes in the mouth in five out of thirty-four cases of latent lues. Freuwald (2) found spirochetes in the lymph glands in ten per cent. of latent cases. Engman and Ebersson (3) found the organisms in the lymph glands in three out of fourteen cases of latent lues and in two out of seventeen specimens of seminal fluid. Arzt and Kerl (4) found spirochetes in the scar of a chancre in a patient who had been clinically and serologically negative for a period of eight years. Sainz de Aja (5) reported a case where a chancre developed in a woman after she had been married a short while to a man who was clinically negative and who denied a history of syphilitic infection. In the case described below, the woman has probably infected her husband after a period of latency of seven years' duration.

CASE.—Mrs. B. P., was twenty-one years old, born in Holland. She was married and had charge of a storeroom in a large hotel. She came under observation on March 18, 1914. She said that her husband had a chancre about four weeks previously. A baby was born to them about that time and it lived only about a month. Her present illness dated back to just prior to the birth of the child, when she developed a sore on the vulva.

On examination, the patient showed a maculopapular eruption on the trunk, a corona venerea, a syphilitic alopecia, a condyloma latum on the vulva, with general adenopathies and a syphilitic angina.

Up to March 30, 1914, she received two injections of one grain each of mercury salicylate and one injection of three tenths gm. of salvarsan. Her rash had completely disappeared, the pharyngitis was much improved, the cervical glands were no longer palpable, and the inguinal regional lymph nodes had markedly diminished in size. The condyloma was nearly healed. By June 13, 1914, she completed a course of five salvarsan injections, four of which consisted of only two tenths gm. each, and

ten mercury salicylate injections. At that time the patient was completely free of symptoms. Even the alopecia was no more to be seen. After a rest period of four weeks a Wassermann test was made and proved negative.

That period was not far removed from the days when the efficacy of salvarsan was greatly overrated and accordingly a negative Wassermann reaction was regarded as fairly good evidence of a cure, regardless of how little treatment the patient had received. Therefore, treatment had not been resumed, but the patient was ordered to return after a month for another test. The reaction was again negative on July 17, 1914. On August 31st a third specimen of blood was taken for a test and, when the patient came back a week later to inquire about the results, not only was the reaction positive, but also a general adenitis had redeveloped and lenticular papules appeared on the neck and abdomen. She received one salvarsan and one mercury injection and disappeared from further observation.

She again appeared on September 14, 1921, after an absence of seven years, and told this immensely interesting story. She had lived with her husband for a short time after the last treatment. The husband remained untreated and, when she redeveloped a sore on the vulva, she believed that he had infected her a second time. Whereupon she left him and was subsequently removed to City Hospital where she remained until she was discharged five weeks later, when all symptoms had again disappeared. Her husband was then deported as a public charge and she had obtained a divorce.

She married again in 1916. Since then she gave birth to two apparently healthy children, had no miscarriages, and remained symptomless to date. Two weeks prior to her second appearance on the scene her second husband developed a sore on his penis. A diagnosis of chancre was made and his blood gave a four plus Wassermann reaction. He absolutely denied promiscuous intercourse.

On examination the woman was found entirely free from any signs of syphilitic disease. There were no visible vulvar, vaginal, or cervical lesions and her blood, as well as that of both her children, yielded a negative reaction. She was placed under treatment on general principles and, after she had received three injections each of arsphenamine and mercury, her blood again reverted to the positive, giving a plus four reaction.

It is unfortunate that a diligent search for spirochetes in the vaginal secretions had not been made. That would have established beyond doubt the fact of the woman's being a syphilis carrier. As it is, there can not be much doubt that the woman had infected her husband. For that we must take into

*Read before the Association of the Alumni of the Lebanon Hospital, February 14, 1921.

consideration the husband's absolute denial of promiscuous intercourse and the fact that the wife had not received sufficient treatment to be cured of her infection which she contracted in 1914. It can not be argued that the second husband had contracted the disease elsewhere and had reinfecting his wife. It clearly cannot be a case of reinfection, the main reason being that there was no cure and, according to modern belief, reinfection can only take place after the disease has been eradicated from the system. She had received only an extremely small amount of treatment before she became latent. She had no symptoms of a new infection. Small invisible lesions of a tertiary nature were probably present somewhere along the genital tract and caused the infection of the second husband. The negative reaction in the woman could not be taken as that occurring in the very early stages of syphilis, because in these cases the reaction is not likely to become positive after treatment.

It is a well known fact that the chancre will disappear of its own accord without any treatment within a period of a few weeks. If the patient remains untreated, there follows a period, lasting from six to ten weeks, during which there are no symptoms and the patient is not inconvenienced in any way. This is sometimes called the second period of incubation. During this period the invasion of the tissues of the body by the spirochetes progresses steadily, and the microorganisms tend to localize in the viscera and especially in the skin, giving rise to the various visceral manifestations of secondary lues and to the secondary skin eruption. In these areas of localization numerous antibodies are probably formed. Kolmer (6) and others found agglutinins in fifty per cent. of syphilitic sera examined. Ebersson (7) found spirocheticidal properties in the serum of patients whose blood gave a negative Wassermann reaction, in those who gave a weakly positive reaction with cholestrinized antigen only, and in infants when their mother's serum also possessed spirocheticidal properties.

The secondary lesions, as well as the primary, disappear without leaving any trace of their former existence. From that time on the patient may go on for many years without presenting any clinical evidence of the disease, yet his system harbors spirochetes and he is capable of infecting others, in the same manner as the typhoid carrier, who is free from clinical symptoms and, at the same time, is capable of disseminating the disease. This is called the period of latency in syphilis. While latency exists, the patient is known to possess the power of resisting infection from an outside source. At the same time, invasion from within is possible. According to Engman and Ebersson (3), latency is only attained through a general systemic invasion of the tissues of the body of the host by the spirochetes. When the above process is interfered with, there is no immunity developed, because there are not enough antibodies formed in the system. When treatment is started early in the primary stage, the secondary eruption is eliminated and, if we assume that this systemic invasion is a necessary factor in the production of immunity, it appears reasonable to suppose that true latency never exists in treated

individuals. If treatment is not massive enough or is not continued long enough to kill all or most of the spirochetes, recurrences are the result, because the remaining organisms are not hindered by any defensive mechanism on the part of the system. To illustrate this, the above authors cite the case of a physician who was accidentally infected with lues. He received two courses of combined mercury and arsphenamine treatment and his Wassermann reaction became negative. There were no secondary symptoms, as the treatment started before the latter appeared. He discontinued treatment and, after a lapse of one year, returned with a macular eruption. This admirably illustrates the fact that, in syphilis, the systemic invasion with its secondary manifestations may be indefinitely delayed by a subcurative course of treatment. As a matter of fact, we also know that patients who already had their secondaries developed when treatment was started may have a recurrence of the eruption, if the treatment has been insufficient. This recurrence is likely to take place during or after the rest period usually allotted to patients between courses of treatment. This is plainly shown by the case reported above and also by the one following.

CASE II.—E. R., male, twenty-eight years old, came for treatment with a healing chancre and a secondary rosolia, which had existed for about a week. He received five injections of arsphenamine consisting of two decigrams each and ten weekly injections of mercury salicylate of one grain each. After a period of rest which lasted one month he returned with a fresh papular syphiloderma which covered almost the entire body. There were also adenopathies. Both disappeared after a few treatments.

From these cases we learn:

1. That a secondary eruption may recur in cases that have not received sufficient treatment.
2. That a fresh systemic invasion may take place not only in cases where the secondary eruption has been suppressed by a subcurative course of treatment, but also in cases where the subcurative treatment has been started after the appearance of the secondary eruption. In this case the second eruption is called a recurrent secondary.

Additional deductions can be made from the first case reported.

1. That a latent syphilitic may infect others. In this case after having been symptomless for seven years.
2. That a negative Wassermann reaction in an asymptomatic patient in the presence of a syphilitic history means nothing.
3. That a negative reaction in a syphilitic may and frequently does revert to the positive after a certain amount of treatment.
4. It tends to corroborate the law of Profeta, in so far that a syphilitic mother may give birth to asymptomatic children, but no conclusions can be drawn as to whether a syphilitic mother can give birth to nonsyphilitic children. It is unfortunate that the two children mentioned above have not been long enough under observation to determine the presence or absence of syphilis.

The Interpretation of the Wassermann Reaction

Its Reliability and Limitations

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The recognition of the frequent use of the Wassermann test is in no sense new, and much has been written on the matter by a number of able men. Nevertheless, the knowledge is by no means general and the important points will bear repetition many times, particularly the correct interpretation of the results of the Wassermann test. The literature on the subject, although quite abundant, is at times conflicting, and leaves many in doubt as to the merits of the test.

BASIS OF WASSERMANN TEST.

I shall not attempt to go into the details of the technic of the test save to mention the principle involved. The Wassermann test is based on a reaction known as the complement fixation reaction first described by Bordet and Gengou in 1906. It will be remembered that in order for bacteriolysis or hemolysis to occur antigen, amboceptor, and complement must be present. For purposes of illustration, if we add sheep cells (antigen), blood serum of a rabbit immunized to these cells (amboceptor), and fresh normal blood serum (complement) hemolysis will occur, i. e., the hemoglobin of the red cells is washed out. In the same way, if the cells and the normal fresh serum be added nothing will occur until immune serum is added, when hemolysis results.

In neither case is the complement in the normal blood serum fixed by either antigen or amboceptor alone, but can only be fixed when both antigen and amboceptor are combined with it. This fact led Bordet and Gengou to the discovery of complement fixation as a specific test for the differentiation of bacteria, for they found that by using a bacteriolytic and a hemolytic system together it is possible to discover the presence of a specific antigen or amboceptor in a mixture. The hemolytic system is used as an indicator, as hemolysis is visible to the naked eye, while bacteriolysis is not. For instance: If we add to (amb.) typhoid patients' serum, (ant.) culture typhoid bacilli, (com.) fresh guinea-pig serum, (amb.) rabbit's serum, (ant.) sheep cells—no hemolysis occurs—positive reactions. If we add to (amb.) normal patients' serum, (ant.) culture typhoid bacilli, (com.) fresh guinea-pig serum, (amb.) rabbit's serum, (ant.) sheep cells—hemolysis occurs—negative reaction.

From these experiments in bacteriolysis and hemolysis it will be seen that the principle of complement fixation can be utilized in the diagnosis of diseases due to a specific microorganism. This fact was recognized by Wassermann. Neisser and Bruck who applied it to syphilitic serum, and in 1906 published a paper giving their results in the diagnosis of syphilis by the complement fixation test. Wassermann considered the complement fixation reac-

tion in syphilis as a true antigen antibody reaction, the fixation being due to the specific amboceptors present in the patient's blood, produced by the *Treponema pallidum*, the etiological agent of the disease.

This conception of the reaction was held by all observers until 1907 when several investigators demonstrated that complement fixation in syphilis occurred not only when an extract of tissues containing *Spirochæta Pallidum* was used as antigen, but also when nonspecific substances were used, as extracts of normal tissues. Although this is undoubtedly true, the practical application of the test in millions of cases of syphilis has proved that the test is practically specific for syphilis. As generally performed the Wassermann test is not a true specific reaction but it can be made so by employing antigens prepared from pure culture of *Spirochæta pallidum*.

PROCESS OF FIXATION.

Many theories have been advanced to explain the process of complement fixation in syphilis, but none of them rest upon sufficient experimental evidence to be acceptable. Noguchi proved that the substances which fix complement in the Wassermann test are acetone insoluble thus indicating that they consisted largely of lipoids, and further analysis showed that such antigenic extracts contained lecithin, cholesterol, and sodium oleate. Noguchi further believes that a positive result with pallidum antigen indicates the formation of true antibodies in the blood of the patient in abundance, while a negative reaction indicates their absence. These facts render it probable that the Wassermann reaction is of a dual nature when an extract of fetal syphilitic liver is used as antigen, in some instances consisting of a true antigen antibody reaction between specific antibodies in the patient's serum and specific substances in the antigen; and a nonspecific reaction between the lipotropic substances in the patient's serum and lipoids in the antigen. When the specific antigens are employed the Wassermann reaction does not occur as consistently as when nonspecific antigens are used nor does it occur in all stages of the disease.

FACTORS INFLUENCING THE REACTION.

There are a number of factors which may influence the Wassermann reaction rendering it falsely positive or falsely negative as the case may be. 1. Contaminated sera with *Staphylococcus aureus*, *albus*, or *Bacillus subtilis* may give rise to a positive complement fixation reaction in normal serum. Therefore, blood serum should be collected under aseptic precautions. 2. Blood serum containing bile will give rise to a false positive reaction. 3. The effect of alcohol upon the Wassermann reaction is

very important from a practical viewpoint, even in our days of prohibition, and one which should not be forgotten when blood is collected for the Wassermann test. A negative reaction occurs inevitably after the ingestion of alcohol for about two days. 4. Shortly after general anesthesia positive reactions have been obtained in sera which have been proved to be normal.

CORRECT INTERPRETATION OF RESULTS.

The correct interpretation of the result of the Wassermann test is of utmost importance. One cannot but be impressed with the evident misconceptions of many otherwise able physicians regarding the exact significance that may be attached to a positive or a negative result of the Wassermann reaction. Many a patient is still being told that he is free from syphilis, the diagnosis being based upon a single negative result, while others are still being told that they have been suffering from the disease upon the strength of a weakly reacting serum or upon a reaction with the cholesterinized antigen only, in the absence of a history or symptoms of the disease. There is a surprising amount of lack of judgment regarding the interpretation of the various grades of reaction. The interpretation of the laboratory reports of the Wassermann test, such as positive, negative, doubtful, and anticomplementary results are left to the clinician.

A positive Wassermann reaction means the presence of spirochetes somewhere in the body, with a few exceptions such as yaws, leprosy, malaria, and scarlet fever. The lack of a history or of symptoms have no influence in deciding upon the treatment. Inhibition of hemolysis with the cholesterinized antigen only or by the ice box method of fixation is of value in treated cases only.

A doubtful Wassermann reaction in early latent or late latent cases must be considered as positive. But if no history of infection is obtained and no symptoms are present a doubtful reaction is not sufficient evidence upon which to base a diagnosis of syphilis. A doubtful reaction in a patient with a lesion that is suspicious of a primary sore is of diagnostic value.

A negative reaction is of no value in eliminating syphilis when a primary sore is suspected. In extragenital chancres the Wassermann reaction is of great value in enabling one to make an early diagnosis. A negative reaction is of great value when suspicious symptoms of secondaries are present and only when this reaction persists for several months are we justified in excluding syphilis. A negative reaction in patients suspected of tertiary syphilis is of no value in excluding syphilis unless it persists for several months. The blood is at times negative and the cerebrospinal fluid is positive in syphilis of the central nervous system. A single negative reaction where there is no history of infection and where no symptoms are present, is of considerable value as a corroborative sign that syphilis is not present, but where there is any suspicion that the disease may be present it has very little value in excluding syphilis. In treated cases a negative reaction must be obtained consistently for over a period of at least one year, the patient must present no symptoms, and

the spinal fluid must also be negative before one may consider the patient cured.

VARIATIONS IN FIXATION POWER.

In the consideration of a negative reaction one must not forget the existence of a normal daily variation in the complement fixation power of syphilitic serum. The fact that the blood serum of an undoubted syphilitic may, during certain intervals of time, give a negative reaction in the absence of treatment and when previous and subsequent tests are positive, is of practical importance. This indicates the great value of repeated examinations when syphilis is suspected. A negative reaction in the newly born up to four months is of no significance in excluding syphilis. This has been well demonstrated by Dr. Williams in a series of fifty-eight hundred cases and proved the futility of the test in the early months of life, so much so that it has been abandoned as a routine examination in his clinic. Better results are being obtained in these early months by the use of the x ray.

The intensity of the Wassermann reaction in the various stages of syphilis is of considerable prognostic value. Persistently positive reactions, commonly called Wassermann fast, are indications of visceral or nervous syphilis and usually mean grave syphilitic infections.

SUMMARY.

1. The Wassermann reaction for all intents and purposes may be regarded as specific.
 2. Great care and careful judgment must be exercised in the interpretation of the results of the Wassermann test.
 3. A negative reaction may occur in a syphilitic due to the normal daily variation in the complement fixation power of syphilitic serum.
 4. Contaminated blood may give falsely positive reactions.
 5. Wassermann fast cases mean a grave infection and usually visceral or nervous syphilis.
 6. A positive reaction with the cholesterinized antigen only or with the ice box method of fixation are of value only with a history or symptoms of syphilis.
 7. The ingestion of alcohol previous to taking blood will render the reaction negative.
 8. A positive reaction is obtained in normal sera shortly after general anesthesia.
 9. Blood containing bile may give a positive reaction.
 10. A negative reaction in the newly born for a period of four months is of no value.
 11. A single negative reaction means nothing.
 12. In a suspected case a series of eight consecutive daily tests should be done.
- If these remarks are kept in the mind of the clinician whenever he seeks the result of a Wassermann test, there will be much less criticism of the value of the test, as well as of the laboratory worker, and patients will be benefited immensely.

2042 EUTAW PLACE.

The Treatment of Gonorrheal Epididymitis*

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In recent years there have been a number of different methods brought forward for the treatment of gonorrheal epididymitis, several of which have attained considerable popularity and wide usage, while others have fallen into disuse. Any method that strives for universal acceptance must be simple in technic, give quick relief, and help shorten the course of the primary gonorrhea. This complication being a frequent one, it behooves us to formulate a course of treatment that will minimize as much as possible the enforced confinement of the patient to his bed.

It is generally agreed that the most important measures in the proper handling of this very painful condition are: 1, rest in bed, and 2, proper support of the scrotum. Whereas, the first of these is of great value in shortening the acute stage and reducing the temperature that generally accompanies it, the patient who is usually anxious to keep his disease secret, suffers considerable embarrassment and mental anguish when this course is made necessary.

LOCAL AND OTHER MEASURES.

Most of the local applications for the control of the pain in the offending organ depend upon the patient's stay in bed. Of these, the most commonly used are ice bags, hot water bags or electric pads, poultices and therapeutic lamps. The ice bag, though useful in checking the pain and inflammation during the early stage, is not so efficacious as heat in hastening absorption of the swelling. The hot water bag or electric pad is quite soothing and expedites resolution of the inflammatory exudate. Poultices, although efficient, are too troublesome to be of much value. The therapeutic lamp of high candle power effectively creates an active hyperemia which in turn lessens the pain. The drawbacks to this treatment are, 1, the handling of the apparatus is cumbersome to most patients and, 2, if not carefully used it can produce severe burns of the scrotum. Guaiacol and ichthylol are often used, but the objections to these are the soiling of the patient's clothing and the odor which generally betrays his secret. Vaccines are used by many, but the effects produced by these are quite problematical, and rarely, if ever, can it be claimed that they exert any immediate influence on the disease. The tight bandage applied to the affected part is generally too painful to be used with any degree of frequency.

For the support of the scrotum during the patient's stay in bed, the old Bellevue bridge of adhesive, stretched across the thighs, is very popular. The T binder and Jock strap are even better than this, if properly adjusted, since they can be used also when he is up and about. In severe cases the scro-

tum can be anchored up against the abdomen with adhesive in a number of ways.

EPIDIDYMYTOMY AND MULTIPLE PUNCTURE.

It has long been the aim of urologists to devise means to shorten the course of the disease and relieve the pain as quickly as possible. Chief among these is the operation of epididymotomy. Although there are a number of different modifications of this operation, that of Hagner remains the classical and the best. The proponents of this method assert that by early incision the vas deferens does not become occluded, and the likelihood of sterility is thereby materially lessened, but it is still too early to draw these conclusions. Whereas, the severe pain that generally accompanies the complication subsides almost immediately after the operation, the objections raised against this procedure are as follows:

1. It is a surgical procedure usually necessitating confinement at home or in the hospital.
2. It requires a certain amount of surgical skill.
3. In the hands of many operators, it means a mutilation of this important organ.
4. It often requires a general anesthetic to permit of a thorough exploration of the epididymis.
5. The convalescence of the patient and healing of the wound are often greatly delayed.
6. The induration left after the operation is often more pronounced than after the more conservative methods.
7. Many patients object to any and all surgical interference. By many, this operation is still considered to be one of last resort, done only when the pain is persistent, or when frank suppuration exists.

Next in importance is the multiple puncture of the inflamed epididymis with a needle and the simultaneous injection of procaine solution. The principle of this procedure is the riddling of the distended tunica vaginalis, permitting the serum to exude out into the surrounding tissues and relieving the tension within. At the same time the procaine tides the patient over the immediate effect of the operation. While the pain subsided very quickly in a fairly large proportion of cases in which this method was used, the procedure itself is quite painful and often excruciatingly so. Furthermore, one injection does not always suffice and the patient as a rule is loath to undergo a second treatment of this kind. The procedure is also unsurgical, and unless done under strictly aseptic conditions, may result in a secondary infection of the scrotum and its contents which may be far worse than the original condition we set out to treat.

SODIUM IODIDE INTRAVENOUSLY.

During the past twenty-one months after reading the observations reported by Dr. Maximilian Stern, of New York, I have been using a sterile solution

*Read before the East New York Medical Association, Brooklyn, N. Y., February 15, 1922.

of sodium iodide intravenously as a routine in all my cases of epididymitis, with results that seem to be more uniformly satisfactory than with any other existing form of treatment. My personal experience with this drug in about ninety cases has been very encouraging. In addition to these, I have been fortunate enough to follow up very closely an additional sixty or seventy cases belonging to my colleague, Dr. V. H. Pentlarge. Since the adoption of this method, the bedridden patient has been the exception rather than the rule.

The average number of injections necessary is four or five, some requiring only two or three, while others as many as eight or ten. Usually within twenty-four hours after the first injection there is a varying degree of improvement, which at times amounts to almost complete subsidence of pain. Others require two or three injections to obtain these results. When given early in the course of the complication the results are often quite rapid, the pain, tenderness, and swelling subsiding very quickly. This naturally enables us to resume treatment of the urethritis at quite an early date. In the majority of cases the induration remaining in the epididymis at the end of three or four weeks is quite negligible, in the remainder, it is at least considerably less than with the other methods.

There is usually no need for intercepting the patient's visits to the physician's office when the unfortunate complication occurs, as with the early use of sodium iodide and the proper support of the scrotum there is rarely any need for treatment in the hospital or at the patient's home. The great majority can go about their business without much difficulty and the secrecy with which the disease is generally surrounded is not betrayed as it is with most other methods.

The injection is a safe office procedure, takes only a few moments to administer, and if properly done causes no pain. It does not require any elaborate paraphernalia, nor does it require any particular skill on the part of the physician. If proper aseptic precautions are observed, it is not followed by chills, fever, or other untoward effects. Although the solution should be injected into the vein, no sloughing occurs if it is injected into the surrounding tissues, the only result from this accident being a burning sensation of varying intensity at the site of injection which lasts about ten to thirty minutes. In two instances, in my series, shortly after the injection and lasting several hours there developed a swelling of the salivary glands which was accompanied by pain on movement of the jaws. Some patients complain of the intensely bitter taste of the iodide which may last as long as twenty-four hours.

None of these so-called drawbacks, however, are serious enough to contraindicate the use of this drug. With variations depending upon the patient and his condition it is generally given every other day for the first three or four doses, and then every third or fourth day thereafter until the desired effect is obtained. The solution is put up in sterilized, sealed ampoules, each containing two grams of sodium iodide in isotonic base. One ampoule constitutes the average dose. It should be administered warm and to do this the ampoule is heated slightly

in warm water before opening it. Since no reaction follows the injection, there is no need for starving the patient previous to the treatment nor is there any necessity for rest afterward.

Naturally, in addition to the intravenous medication, proper support of the scrotum, attention to the bowels and avoidance of undue exercise should be observed. Guaiacol and diathermy applied to the affected organ help to hasten resolution.

The following case histories selected from my records at random are typical of the results obtained by this method:

CASE I.—M. W. came to me with an anteroposterior gonorrheal urethritis, prostatitis, and seminal vesiculitis; a left epididymitis had developed during the eighth week of the disease. On April 25, 1920, he was given two grams of sodium iodide intravenously and diathermy applied to the epididymis. The next morning the symptoms were slightly aggravated but later in the day his condition improved materially until the following afternoon, when the pain increased slightly. On April 27 the second dose of sodium iodide was given, following which he felt better until the next evening, when he had a recurrence of the pain which lasted several hours. On April 29 the patient felt much better, the epididymis being less tender. He was then given his third and last dose. On May 1 the condition was considerably better, the epididymis being much smaller and much less tender. On May 5, the epididymis was no longer tender and was only slightly enlarged and indurated. On this date, only ten days after the onset of the complication, intraurethral treatment was resumed. Four weeks after the last injection there was scarcely any induration noted in the lower pole of the epididymis. The patient did not lose a single day from business.

CASE II.—W. S.—During the third week of the disease while cranking his car, this patient developed a large and tender right epididymis, and on November 6, 1920, received his first dose of sodium iodide. Two days later, on November 8, the epididymis was about the same in size but less painful, and the patient received his second injection. On November 10 the third injection was given and the epididymis was found to be smaller and less tender. On November 12 he was considerably improved, the epididymis becoming rapidly smaller and only slightly tender. He was then given his fourth dose. On November 15 the fifth injection was administered, the epididymis being much smaller and no longer tender. On November 19 the lower pole of the epididymis was only slightly enlarged and not tender. On this date he received the sixth and last dose of sodium iodide. On November 20, only a slight amount of induration remaining in the epididymis, local treatment of the urethra was resumed.

CASE III.—L. B.—When first seen by me on June 13, 1921, this patient had been in bed for two days with a large and tender right epididymis acquired during the third week of urethritis. He was then given his first dose of sodium iodide. Two days later his condition was so much improved that he was able to come to my office where he received a second dose. On June 17 he was still better, the

epididymis being distinctly smaller and less tender and painful, and the third dose was then administered. On June 20, when the fourth dose was given, the patient felt much better and the epididymis was considerably smaller and only slightly tender. The condition on June 22 was much improved, the epididymis no longer being tender and only slightly enlarged. He received the fifth dose on that day. On June 24, as the patient showed great improvement and the epididymis was only slightly indurated and not tender, intraurethral treatment was resumed. This patient was a taxicab chauffeur and on July 17, after cranking his car, the right epididymis again became tender, painful and slightly enlarged. Two doses of sodium iodide at an interval of three days promptly cleared up his condition.

CASE IV.—E. W., an actor.—This man's urethritis began four months before he was seen by me. One month after the onset of the gonorrhea a right epididymitis developed which confined him to his bed for ten days. On May 7, 1921, he came to me with a large painful and tender left epididymis of four days' duration. He was given an ampoule of sodium iodide, and two days later another dose was injected. He did not report again till May 17th when his condition was much improved, the epididymis being much smaller and no longer tender. He then received his third dose of sodium iodide. On

May 20, after a dancing act, the swelling having recurred, he received a fourth dose. On May 24, although he felt better and the epididymis was much smaller and not tender, a fifth injection was administered. On May 28, the epididymis being only slightly indurated and not tender, intraurethral treatment was begun.

In conclusion, I desire to emphasize the superiority of the intravenous use of sodium iodide over all other existing methods in the treatment of the majority of cases of acute gonorrheal epididymitis. It cannot be argued that the splendid results obtained are due to the scrotal support, guaiacol and diathermy which many of my patients have received, as these same measures were carried out previous to the use of sodium iodide without obtaining the splendid results seen since this procedure was started. The increased rapidity of resolution is probably due to the well known properties of the iodides in producing a more active diapedesis and phagocytosis. It is asserted by others that the iodides might hasten absorption indirectly by its influence on the thyroid. In short, this method recommends itself for more general use on account of its simplicity of administration, freedom from danger, and above all its action in hastening the relief and cure of this painful complication.

Cases V and VI will appear in the author's reprints.

Keratosi Blennorrhagica or Gonorrheal Keratosis*

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My first experience with gonorrheal keratosis was in Etaples, France, in the fall of 1917, Fifty-first General Hospital, British Expeditionary Force. It was at this time that venereal diseases had reached such alarming proportions as to cause serious loss of man power to the British Army. The formation of these enormous venereal hospitals or camps was the result. LeHave and Etaples were the largest; at that time we had about three thousand five hundred to four thousand patients, who were hospitalized and confined to camps which were closely guarded.

The entity was first recognized and reported by Vidal, a French physician, in 1893. Following Vidal's report a period of seventeen years elapsed before this rare disease was described in the English literature. In 1910 Turnbull and Sequeira, both Englishmen, reported the identical condition as described by their French colleague. Simpson, of Chicago, was the first American to describe it and present a report at a meeting of the American Medical Association in 1912. With the exception of the reports of Haase and Wadrock, this seems to constitute our only contributions on the subject. In searching the literature it was with some difficulty that these were found.

It is practically always associated with gonorrheal arthritis. But there are a few cases reported without joint involvement. Lundie, who described it graphically at our hospital in France, in writing for the *British Journal of Surgery*, speaks of two forms, namely, the localized involving the feet and hands, and the generalized forms upon the extremities. The clinical appearances of patients, to my mind, vary too greatly to fit into such a category. Characteristic lesions vary in size from a pea to larger waxy nodules, discrete and comparatively few in number. They begin as small conical protuberances, hard to the touch like corn, and are painless.

The French speak of these lesions as dry blisters, or dry hyperkeratotic pyoderma, which certainly is an admirable term for them.

These hard, domeshaped crusts tend to become brownish in color as the case progresses, resembling rupia, with which it is often confused. Under treatment, or with improvement of the gonorrheal infection, these coneshaped masses wither and drop off, leaving a pink base with no infiltration or permanent scarring, thus differing from the syphilides.

Often in the same case, as in the patient now in our ward at the Jefferson Hospital, the toes, especially on the plantar surface, present a condition simulating chilblain, the skin is tender, with distinct

*Read before the Philadelphia Urological Society.

swelling, later becoming dry and crusted, extending down the soles of the feet. Sequeira aptly likens it to the mountain ranges on a relief map.

Again one sees a general plantar keratosis. I recall a frightfully severe case in which there was an

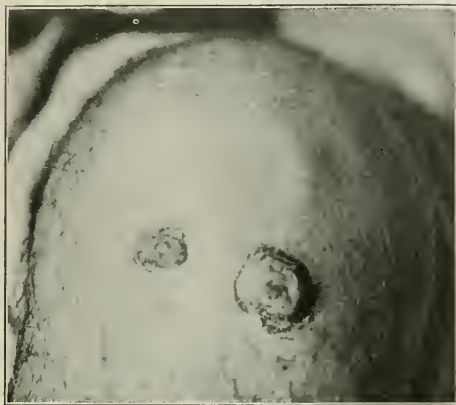


FIG. 1.—Elevated crusts on right knee in case of keratosis.

imperfect cast of the foot exfoliated, which was exhibited as a curio to visiting physicians.

The French, who up to that time had recorded about twenty cases, believed the skin condition to be absolutely characteristic. The incidence and comparative frequency of these rare conditions at our hospital for a period of over nearly a year I cannot explain. The debilitated and cachectic condition of many of these unfortunate men, combined with the gonorrheal systemic infection, and often a history of repeated infections, which for the most part were purely relapses or recurrences, plus the rigors of a long war, may be the answer; or again, it is reasonable to assume that with such a tremendous number of cases with long standing Neisserian infection, often neglected, or with no treatment, corralled as they were there, might possibly have produced the same proportion elsewhere.

I cannot but feel that debility, cachexia, long standing local infection, or virulent systemic infection by the gonococcus is the causative factor in this peculiar and unusual epidermal manifestation. Pathology and histology regarding these crusts is far from satisfactory; hypertrophy of the epidermis, with edema and infiltration of leucocytes, increased plasma, and round cells. It is the consensus of opinion that it is a parakeratosis, and not a true keratosis. Small sections of tissue from the skin lesions and epitrochlear glands were inoculated in various culture media; some of the materials were used to inoculate rabbits and the French have even tried to inoculate men. Smears and cultures from the serum of succulent lesions were all negative. The nearest approach to any exact or definite pathogenesis is reported by Wadrack in 1917, who demonstrated in his case a few gram negative diplococci closely resembling the gonococcus. All other cases were negative to bacteriological findings.

The case which I report herewith is one taken from the service of Dr. H. R. Loux, at the Jefferson Hospital. The history of this patient is as follows:

CASE.—Patient gave a history of gonorrhea at the age of seventeen years, and again at the ages of twenty and twenty-one years; he denied lues. His present illness began six weeks prior to his admission to the hospital. An acute anteroposterior urethritis developed, with marked symptoms of deep urethral involvement. The same day the patient complained of severe pains in left shoulder and arm and two days later in the elbow and wrist. Two weeks subsequent a right ophthalmia occurred which gave him much trouble. At this time the patient noticed elevated conical nodules scattered here and there, about a half inch in diameter, arising from the skin surface, and also a thickening of the toes and soles of the feet.

Physical examination on admission showed a well nourished adult male, with marked pallor and a slight elevation in temperature. He complained of pain in the right hip and ankle joint but they were greatly inflamed, and on his admission there was great tenderness with a tendency to localize. There were a number of elevated crusts, waxy in appearance, on the right knee, thigh and hip and left leg and back. There was marked thickening of the plantar surfaces of the feet, and the toes were swollen and reddened, with a marked tendency to hardening. The face and scalp were free from lesions. Wassermann test was negative; urethral smears positive for gonococci. The prostate was not examined owing to the marked posterior involvement, precluding collection for bacteriological examination. X ray findings of joints showed no pathological condition of bones. The ophthalmologist's report of the eye condition was metastatic gonorrheal iritis. The treatment consisted of phylacogens, rest in bed and forced fluids.

The treatment used in the cases that came under my observation while in the service in France and which was the accepted and routine therapeusis for this condition was McDonagh's colloidal therapy, consisting of such agents as manganese, antimony and colloidal sulphur which is known as intramine.



FIG. 2.—Plantar surface of foot, showing resemblance of chilblains to keratosis.

And to date I have never seen any remedial measures which approach them for efficiency. This treatment was also the recognized therapeutic (systemic) for all gonorrheal complications. The relief and improvement of joint involvement was at times almost theatrical.

4218 WALNUT STREET.

Infection of the Kidney*

Some Present Day Considerations

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Infections of the kidney, forming as they do a frequent and an important disease complex, have for many years been the subject of extensive research and clinical observation by the bacteriologist, the pathologist, the internist, and the surgeon, alike. And as a result there has accumulated a vast literature dealing with this subject. It is by no means my purpose to attempt to reconcile and to correlate the manifold aspects presented by this voluminous literature, even were I able to do so, for much of it is confused, but to bring to your attention certain points on which there is general agreement at the present day, and then to offer for your consideration some data which have been obtained during the past year at the Laboratory of Surgical Research of the Harvard Medical School and in my clinic at the Peter Bent Brigham Hospital.

For many years it has been generally appreciated that two outstanding and evident routes exist by which it is possible for infectious organisms to reach the kidney; the one by way of the blood stream, the other upward through the urinary passages. The first of these has been called the descending route, the second the ascending. Though older writers were almost unanimous in their statements that infection reached the kidney from below, it soon became clear to such accurate observers as Albarran and, later, Rovsing, that in many instances the facts failed to support this assumption, and that it was necessary to look to the circulating blood stream to explain the existing conditions. Strong support was brought these views by the demonstration by several observers, notably by the work of Biedl and Kraus, that virulent, living microorganisms may and frequently do pass through the kidney and as frequently leave it intact. Thus, to the liver, intestine, and spleen was added one more organ by the activity of which nature can rid the human organism of bacteria. And this property of the kidney is a basic one, holding true for all bacteria as well as for inert particulate matter, if this be of a size sufficiently small. This fact is universally accepted as true today and therefore needs no further emphasis.

But if the kidney is able to transmit organisms without demonstrable detriment to itself, it becomes necessary to look further for the reasons why it may at times become the seat of inflammation often leading to serious crippling of its function or even to its complete destruction. Two outstanding reasons are evident; the first concerns the virulence and quantity of the infecting organism; the second is found in stasis within the organ itself. It has been said that, though the kidney will permit the passage of living bacteria, it does not do so from choice, but from necessity; and of course this is true. There is, in other words, a definite and rather low limit in

the number of bacteria which can thus be disposed of. Organisms of high virulence and in large numbers on reaching the kidney by way of the blood stream cannot be eliminated, but remain to cause infection. This infection is thus seen clinically to be of many varying degrees of severity, from those acute fulminating conditions so clearly described by Brewer, down to the transient, mild, and often almost symptomless conditions, the so-called pyelitis.

A second potent contributing cause of infection of the kidney is found in any circumstance which slows down the mechanism by which the kidney rids itself of its product, the urine, and thus brings about stasis of greater or lesser degree. Under normal conditions the urine in the renal pelvis is carried down the ureter by the propulsive force of the ureteral peristalsis. These waves of muscular contraction beginning in the pelvis course downward producing a normal intrapelvic pressure which is very low. Indeed when peristaltic activity is greatest, as in conditions of marked diuresis, this pressure may even be of slightly minus value so that there is an approach to a slight suction effect. Impediments to this mechanism come most frequently from stone, ureteral angulations due to ptosis, tumors, or anomalies in the renal bloodvessels. Clinical examples of infection of the kidney secondary to such causes are familiar and will be readily recalled by all.

Infection thus reaching the kidney by the blood stream is of necessity transmitted to the blood from some preexisting focus, so that of late much attention has been paid to finding such localization, whether it be in teeth, tonsil, bowel, or whatever; for in removal of the original focus lies the best assurance of ridding the patient permanently of his difficulty.

The recognition of the facts above sketched concerning blood borne renal infection is so important and their elaboration so attractive that today there are some who practically deny that the kidney ever becomes infected except in this manner, and, by implication at least, consider the older ideas of infection ascending up the ureter as untenable and not proven.

That infection should reach the kidney by ascent from below presupposes, of course, the existence of a cystitis. Knowing as we do today the remarkable resistance of the bladder mucosa to infection under ordinary conditions, it becomes at once evident that the view which holds the source of infection of the kidney to be by way of the blood stream must be true in the large majority of cases. Circumstances occur, however, notably in disease of the lower urinary tract, such as stricture, prostatitis, or enlargement of the prostate in men, and cystocele in women, which lead to frequent infection of the bladder. The problem, then, concerns those conditions which may or may not permit the upward propagation of bacteria from bladder to kidney.

*Read before the New York Academy of Medicine, December 15, 1921. (From the Urological Clinic of the Peter Bent Brigham Hospital.)

There are two ways by which one may conceive bacteria reaching the kidney from the bladder; the first by way of the lymphatics, the second by way of the lumen of the tube. The first of these routes has never been satisfactorily proved, although several experimental attempts have been made to do so. None of this work will bear careful criticism, and indeed the very segmental character of the lymphatic system about the ureter, as determined by the anatomists, makes direct transportation of bacteria from bladder to kidney highly improbable. There remains the lumen of the ureter itself. Here the objection is immediately raised that against the current of urine itself, as well as against the contracting muscular peristalsis, bacteria have no sufficient power of motion to ascend. And of course this objection is entirely valid. It is pointed out that only in those instances where the ureterovesical valve has become incompetent and the ureter a dilated tube with indurated wall can there be any approach to conditions which would permit such ascent of bacteria. But that there is still another method by which portions of the fluid contents of the bladder may spontaneously reach the kidney, and that this has not received sufficient consideration either by the physiologist or clinician, is a fact which I wish especially to bring to your attention. I refer to the so-called ureteral reflux. (Reports from the Surgical Research Laboratory of the Harvard Medical School dealing with this subject have already been made) (1, 2, 3).

This phenomenon first demonstrated by Lewin and Goldschmidt in 1893, and later amplified by Courtade and Guyon, is distinctly not a retroperistalsis. This is amply shown in the work of Penfield. What actually happens is best described by quoting from the paper of O'Connor and Wislocki.

"Rabbit 1.—Male. October 7, 1919. Ether anesthesia. A number seven F rubber catheter is inserted into the bladder, the bladder emptied and the urethra tied off with the catheter still *in situ*. A laparotomy is next performed and the ureters are exposed under warm, physiological salt solution. Peristaltic waves can be observed traveling at regular intervals down the ureters, averaging one to two a minute with a speed of approximately thirty to forty mm. a second. This is watched for some minutes. A syringe containing twenty c. c. is meanwhile filled with warm saline stained with methylene blue. The syringe is attached to the catheter and the methylene blue solution is gradually injected into the bladder so that it becomes moderately distended. While the ureters are under observation a column of blue fluid suddenly fills the lumen of the right ureter. A peristaltic wave which has already left the renal pelvis meets the ascending column in the upper half of the ureter and impedes its progress. Fresh peristaltic waves commence above, becoming more frequent and vigorous and a struggle ensues for control of the ureter. The column of fluid advances towards the kidney and recedes again with each peristaltic wave. Gradually the peristaltic waves completely expel the methylene blue from the ureter and the ureterovesical orifice closes. The peristaltic waves quickly subside and resume their former frequency of one to two a minute. This phenomenon repeats itself in a few minutes on the same side and also

in the left ureter." Occasionally the ureters are unable to expel the invading fluid. The following instance illustrates this occurrence:

"Rabbit 4.—Male. November 10, 1919. After the initial procedures as described in the preceding experiment have been carried out a column of blue fluid is suddenly seen entering the right ureter. Vigorous peristaltic waves attempt to expel the fluid in the ureter, but after a few minutes it is observed that the ureter is becoming more and more distended with methylene blue solution while the ureteral contractions are becoming feebler and feebler. Finally the ureteral movements cease entirely and the invading fluid takes complete possession of the ureter and renal pelvis."

The following experiment is cited as an illustration of the rôle played by peristalsis in regurgitation:

"Rabbit 15.—Male. November 13, 1919. Ether anesthesia. The bladder is emptied and a catheter tied into the urethra as usual. A laparotomy is performed. The ureters are quiescent, no peristaltic waves occur while the ureters are watched for several minutes. Methylene blue solution injected into the bladder fails to enter either ureter. After removal of the solution from the bladder and reinjection of it several times without any success, five tenths c. c. of a one per cent. solution of barium chloride is given intravenously. The musculature of the ureters responds to barium chloride by increased peristalsis and in this instance vigorous injection. As the first peristaltic waves reach the bladder a column of blue fluid ascends each ureter with great suddenness. The peristaltic waves increase rapidly in strength and frequency and the methylene blue solution is gradually expelled from the ureters and the ureterovesical sphincter closed."

That the fluid which is thus driven upward into the ureter reaches the kidney parenchyma and thence the general blood stream is easily shown by the use of a suspension of particulate matter such as india ink (used recently by Graves) or by the introduction of some poisonous agent such as strychnine. When the fluid injected into the bladder contains ink, particles of this, after the reflux has been produced, can be found in the kidney itself, in the liver, lungs, spleen, and even in the other kidney which has been excluded from the bladder by temporary closure of its ureter. Also in their report made in 1896 Lewin and Goldschmidt described the following experiment:

"There was injected into the bladder of a male rabbit a colored solution containing thirty-five one hundredth grains of hydroxylaminechlorhydrate. (This agent has the property of changing the hemoglobin of the blood into methemoglobin which can be seen by the spectroscope.) Almost immediately the fluid passed up the ureter. Eight minutes later blood taken from the mesenteric vessels showed methemoglobin and the animal died ten minutes after the injection was made." The same sequence of events can be shown when strychnine or other soluble poison is used.

Further work dealing with the conditions under which this reflux may be produced has been undertaken by Dr. Graves, and, though it is not yet com-

plete in all respects, he has found that one essential is a sufficient degree of bladder tonus at the time the reflux occurs. It can never be produced in the presence of a flabby, relaxed bladder. This is in accordance also with the well known fact that it is quite impossible to force fluid up the ureter in the flaccid bladder of the cadaver. A second fact which Dr. Graves has determined is that, while the reflux occurs at widely differing degrees of intravesical pressure, a quick elevation of this pressure is more potent in the production of the reflux than a slow one. This is suggestive of the pressure alteration which occurs during the normal act of urination, a point which will be referred to later. The possible irritative qualities of the injected fluid or its degree of heat or coolness have seemed to play but little part. Other possible factors are being investigated, and will form the subject of a later communication by Dr. Graves.

These being the facts as learned thus far from the experimental laboratory, it becomes of immediate interest to determine whether this reflux is a phenomenon entirely confined to such laboratory animals as the rabbit and dog; or whether it can be produced or observed to occur spontaneously in man. We have therefore been attempting to produce the reflux in suitable patients by introducing into the bladder a solution of bromide of sodium while observing at the same time the ureters by means of the fluoroscope. In somewhat over half our observations it has been possible to see a column of opaque solution suddenly penetrate either one or both ureters. Indeed this result was to have been expected from the evidence brought forth in a series of cystograms published by Kretschmer in 1916. In a number of normal individuals after filling the bladder to examine its outline by x ray the plates were found to show that the injection fluid had penetrated upward into either one or both ureters.

The importance of this reflux, if it prove to be as common a phenomenon as now seems to be the case, is great for the problem of the ascending route of renal infection. Let us see if clinical experience brings any evidence which makes the activity of the reflux a fair presumption.

Two occurrences stand out immediately. The first is the so-called catheter or urethral chill. Here a short time following the passage of an instrument into the bladder there occurs a rigor which may or may not be succeeded by infection of the kidney of a degree and form usually described as a pyelitis. The rigor doubtless represents the response of the body to the introduction into the circulation of foreign material. Therefore it has been assumed that a lesion of the mucous membrane has been caused, presumably in the deep urethra, through which bacteria gain entrance into the blood stream. This assumption has always seemed to me highly improbable because the reaction occurs too quickly and directly after the passage of the instrument and also because this manipulation is frequently performed without the least indication of trauma being caused as evidenced by either pain or bleeding at the time. It would seem to me that a far better explanation of the catheter chill is found by assuming that a bladder for some reason more irritable

and hypertonic than normal has been stimulated to contract suddenly by the passage of the instrument, and a reflux of a portion of its infected contents upward to the kidney thus brought to pass. Once having reached the kidney, this material finds ready access to the circulation as has been shown above.

There is a second clinical phenomenon which I feel can be logically explained only by the operation of this ureteral reflux. During the convalescence following prostatectomy the patient occasionally suffers a sharp rise of temperature often lasting but a day, sometimes accompanied by a definite chill, occurring a considerable time after operation, and following a period of entirely normal temperature. Examination may show tenderness in one or the other loin over the kidney. Careful observation finds that this evident infection of the kidney, usually mild and transient, occurs just after the suprapubic wound has healed to a sufficient extent so that urination per urethram has taken place for the first time since the operation. The postoperative notes of patients in hospital before we had become interested in this subject of urethral reflux will illustrate this point:

CASE I.—A man of fifty-five, in poor general condition, entered the hospital for the relief of acute obstruction of urine. The cystoscope showed an hypertrophied prostate and a bladder otherwise normal except for some evidences of infection. The ureteral orifices were normal. The bladder was opened under local anesthesia. One month later the prostate was removed. Twenty-two days after this, his temperature having been normal for two weeks, we find the following note: "Today after beginning to void by urethra patient had a chill with temperature of 103°, returning to normal in about twelve hours." There were no other ill effects and the remainder of his convalescence was uneventful.

CASE II.—A man of sixty years had the bladder opened above the pubes preparatory to prostatectomy. Nine days later the prostate was enucleated. Fourteen days later we find the following note made by the house officer: "Three days ago for some unexplainable reason the patient's temperature reached 102, pulse 130, and respiration 30. Examination at this time revealed nothing remarkable. He felt quite well and noticed no unusual signs. He was immediately put to bed and has remained there since with subsiding fever. Three days ago he began voiding per urethram, since which time the suprapubic drainage has decreased. The urine remains quite cloudy."

Other similar instances of this occurrence are not hard to find or rare. They seem to me clearly to be best explained by assuming that the bladder, for a longer or shorter period quiescent, has become hypertonic; and on first resuming its function of the expulsion of urine has caused the reflux to appear, resulting in the upward transfer of infected material to the kidney.

These then are some of the considerations which I wish to bring before you regarding the ascending route of infection of the kidney. I must ask your indulgence for their rather fragmentary nature at the moment.

And now just a word in closing is necessary re-

lating to our present views regarding treatment of renal infections in general, however they may have originated. Our strongest weapon is water by the diuretic action of which the kidney is enabled to rid itself of the infecting organisms. Water should be considered as a medicine or drug and as definite orders given concerning its administration as would be given in the case of morphine. The amount which should be administered must reach 3,500 to 4,000 c. c. in twenty-four hours. In the patient in whom infection of the kidney is acute and prostrating and causing a definite lowering of renal function, there will frequently be found an irritability of the stomach and intestine which will prevent the administration of this entire amount of water by mouth. One must then resort to administration by rectum or better still by hypodermoclysis. On this must be our chief reliance. The only drugs which have proved of any value at all are salol and hexamethylenamine, and either of these is at best but feeble. We still use them today more from habit and with the thought that they can do no harm, rather than because of any firm belief in their antiseptic value. Vaccines are of no value whatever. The removal of the primary source of infection, the one to which that in the kidney is secondary, is of

course a very important matter whether this be found in the urinary tract itself, or at some distant region of the body. The local treatment of renal infections by injection of solutions into the renal pelvis is a very important procedure concerning the value of which there can be no doubt. A discussion of this, however, would carry us beyond the limits of the present paper.

In conclusion I wish to emphasize the great importance of early recognition and treatment of infections of the kidney, and that whether acute or chronic, blood borne or ascending, these infections are always secondary to a primary focus elsewhere than in the kidney itself. Therefore if a cure can be accomplished by means other than nephrectomy, it will be most assured after this primary focus has been adequately controlled.

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Diagnosis and Therapy of Certain Lesions of the Urinary Tract*

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As practitioners, men whose duty it is to guide the patient correctly along the road to a proper interpretation of his symptoms, I shall present my paper. For I am addressing a group of men whose work is even more important than that of a specialist, since it presupposes a working knowledge of all the specialties, a knowledge adequate and comprehensive enough to be tantamount to a quick, almost intuitive insight into the character, significance and diagnostic indications of the symptoms of all of the diseases. It is, however, only through the acquisition of the varied viewpoints of those versed in the different specialties, that the practitioner can amplify his medical concepts so as to be of greatest benefit to the patient.

It is in the field of urology particularly that, I am sorry to say, much apathy, an antiquated mental attitude, one savoring of the last generation, a lack of appreciation of the modern method of cystoscopic procedure, and a not infrequent temporizing as well as intravesical tampering, are among the culpable views and acts that can be frequently laid at the door of the busy practitioner. When, in answer to my suggestion that a patient who has been ailing for months with vesicorenal symptoms be subjected to a cystoscopic examination, I hear the doctor say:

*Read before the Eastern Medical Society, New York, December, 1920.

"Don't you think that cystoscopy is rather a serious matter, and do you think it necessary, as yet?" Is it not, then, time for the invocation of a drastic polemic against those, who keep so little abreast with modern diagnostic methods?

If I shall be able to do nothing more than to point out by illustrative examples now and when the most improved diagnostic and therapeutic urological procedures should be applied, I shall be content. If by clinical illustrations and pathological demonstration I shall be able to expose the dire effects on the urinary function of procrastination in the diagnosis of renovascular diseases, I will hope to have accomplished my aim.

URETERAL CALCULUS.

To those whose practice has offered but scant examples of ureteral stone, it may be worthy of note that both in a diagnostic way, as well as for immediate therapeutic benefit, the urologist possesses means of giving appreciable aid. The frequent error of interpreting vague abdominal pain in the lower right quadrant of the abdomen as indicative of appendicular affection is now so well known that mere mention need be made of it here.

In women a routine vaginal examination will not infrequently disclose to the palpating finger the presence of a calculus in the lower ureter, when

symptoms of chronic appendicitis are presented, so this examination must regularly be made whenever permissible.

Although the value of positive urinary findings, such as abnormal cellular elements, particularly red blood cells, when associated with the symptoms of renal and ureteral colic, is not to be deprecated, the absence of abnormal cells is quite compatible with the existence of unilateral disease of the urinary tract. For one must never forget that when the ureter becomes obstructed by a calculus or stenosis of other nature, the urine may fail to reflect the usual concomitant pathological urinary elements. For light we must, therefore, have recourse to radiography and cystoscopy, and of these two the latter is perhaps the more important.

CALCULI WITH NEGATIVE X RAY FINDINGS.

We must never be satisfied to exclude the diagnosis of ureteral stone on the basis of a negative x ray, for it is well known that a large proportion of calculi of uric acid or urate nature throw no shadow on the plate, even though the patient is of but slight stature. For instance, when you are called to a patient who is suffering from renal colic or pain in the lower quadrant along the ureter, radiating in typical fashion, you must not be willing to rule out urinary calculus because on a previous occasion the x ray examination had been negative.

It is when the patient is in an attack that the most valuable assistance can be gained from intervention with the cystoscope, both to diagnose doubtful cases, where the symptoms are obscure, as well as in a therapeutic way.

During an acute attack, which has not all the earmarks of ureteral or renal colic, and which leaves you in some doubt as to whether a gallbladder or appendicular affection is present, and where the urine is negative, it is quite permissible, in the absence of temperature or other threatening signs, to keep the patient under observation. Should, however, the symptoms persist, the colic continue after the first twenty-four hours, and when adequate relief is not had from the injection of morphine, and when continuous injections would be necessary to relieve the suffering, your doubts should be cleared, once and for all, by a combined cystoscopic and radiographic examination.

In what way can the application of the cystoscope be of more value during an attack than after all symptoms have subsided? Too often do we hear the medical man's advice to the patient and even the same statement to the urologist, to wit—"I shall have the patient thoroughly examined after the attack is over." No greater error of judgment can be made than this temporizing or attitude fearful of the application of the cystoscope whilst symptoms are in evidence. For, when the attack is over, particularly when the x-ray is negative, the findings with the cystoscope may be nil; and, furthermore, that great therapeutic benefit, which is most frequently derived by the introduction of the ureteral catheter, will be lacking.

So what shall your attitude be? When the attack of pain does not subside within the first twenty-four hours, but is repeated and the patient com-

plains of constant lumbar ache with or without radiation, you should at once be prepared for a combined radiographic and cystoscopic procedure.

After complete purgation with two ounces of castor oil, a routine x-ray examination is made, the plates immediately developed, and whether positive or negative, cystoscopic examination is proceeded with. If a shadow of doubtful nature is present, its identity is determined by employing a shadow-graph catheter on the side on which it lies.

CYSTOSCOPIC FINDINGS DURING AN ATTACK.

In the bladder we occasionally see the harbingers of descending ureteral stone in the form of multiple submucous hemorrhages that bear the earmarks of recent origin; or, we may see the evidences of the proximity of the calculus to the bladder orifice in an edematous condition of the ureteral lips, or a generalized intrusion of the ureteral mound.

The careful introduction of the catheter will encounter an obstruction. Or the catheter will meet a slight resistance which it passes readily and suddenly evacuate a considerable quantity of urine in a rapid gush or continued stream. From ten c.c. to fifty c.c. or more may be collected without interruption, the amount depending upon the degree of distention of the renal pelvis and ureter. Almost immediately upon the emptying of the retained fluid, the patient experiences relief in the loin and ureter region, and, in this sense, the application of the method is not only of diagnostic, but of considerable therapeutic worth. Hence more is accomplished by the mere introduction of the catheter and the immediate emptying of the retained fluid than by repeated injections of morphine, or by benzyl benzoate or other antispasmodics.

Where the catheters meet an apparently insurmountable obstruction in the ureter, special manipulation will frequently permit us to overcome such obstacles, and to empty a distended renal pelvis. The experienced cystoscopist will rarely fail in the cases of an acute obstruction of the ureter by calculus, to pass the catheter beyond the stone. It is, however, not infrequently the case that as a sequence of successive colics with descent of the stone, impaction into a narrowed portion of the ureter takes place, particularly near the ureteral orifice, where the incarceration may be such, as to preclude the passage of even the smallest ureteral catheter.

This brief résumé will acquaint you with the wisdom of the early application of the cystoscope, when there is a frank indication, such as renal colic, and where immediate relief may be obtained as well as diagnostic assistance.

We also have methods at our disposal for facilitating the spontaneous expulsion of calculi when they are not too large. Whilst the use of intraureteral injections of glycerin, oil, papavarine, benzyl benzoate, and other drugs in solution are indicated to produce relaxation of ureteral spasm, as well as to incite excessive ureteral persistalsis—and may occasionally be of some benefit—they are methods far inferior in their efficacy and reliability to the procedures of dilatation, which I have been using for the last nine or ten years.

The larger proportion, at least seventy-five per

cent. of ureteral calculi, whose small diameter is no larger than three to four eighths of an inch, either pass spontaneously or can be made to pass with one or the other, or a combination of the following methods. These may be enumerated.

The introduction of catheters or bougies with or without the injection of glycerin, oil or antispasmodics; the use of my olivary dilators with or without the simultaneous employment of the d'Arsonval high frequency current; the use of large bougies or large dilating conical ureteral catheters, and finally any one or a combination of these together with the incision of the ureteral orifice by means of a special scissor forceps to permit of the extraction of a calculus too large to be evacuated through the ureteral lip.

Were it not for the numerous examples of the expulsion of a ureteral calculus immediately after or simultaneous with the withdrawal of the dilating ureteral catheters, an attitude of skepticism would find some justification.

OLIVARY DILATORS FOR CALCULI.

A somewhat more delicate series of manipulation can be carried out as suggested by me some eight years ago by the employment of little olives of graduated sizes introduced into the ureter through the operating cystoscope to bring about a more drastic dilatation than is possible by means of catheters alone. Where the ureter has been considerably dilated by reason of the lodgment of a rather large calculus for many months, this method is indicated and attended with gratifying results.

IMPACTED URETERAL CALCULUS.

Where the stone is almost one-half inch in diameter or larger and has been impacted for some time in the intramural portion of the ureter, it may be extricated by cutting the superior lip of the ureteral orifice, when the orifice is evidently too small to permit of its passage. Such a case was the following:

CASE I.—S. B., female, aged fifty-two, consulted me on November 8, 1920, with a history of attacks of right renal colic for about eight years, accompanied now and then with chills and fever. Cystoscopy showed a moderate degree of cystitis; the right ureteral mound tumefied; the orifice small, and its appearance suggestive of a stone just behind the orifice. It was possible to introduce a ureteral catheter with considerable difficulty beyond the stone, but unable to dislodge it. X-ray examination confirmed the diagnosis of calculus by the finding of an ellipsoid shadow about three-eighths of an inch by half an inch at a point corresponding to the situation of the stone as diagnosed at cystoscopy, that is, just above the orifice. On November 12, 1920, the stone was still in the same situation, and the question of operative intervention was considered in view of the fact that the orifice was so small that the passage of such a large stone through it was considered out of the question. However, it was decided to cut the orifice and fulgurate the margin of the incision with a view to stopping the hemorrhage. This was carried out on the 12th of November, when catheterization was found impossible. Immediately after cutting the orifice, the

stone was partly visible, although still fairly imbedded in a pocket of mucous membrane, but, due to the irritability of the patient, it was decided to wait until the following day before making further attempts to dislodge it from its bed. This was not necessary, however, since the patient passed the stone spontaneously.

There are other interesting phases of the clinical course of ureteral calculous disease that may be grouped for discussion under the following heads.

Small calculi with symptoms of intestinal obstruction, pseudoperitonitic symptoms, and auria, large calculi of the ureter and multiple calculi of the ureter.

CALCULUS SIMULATING INTESTINAL OBSTRUCTION AND PERITONITIS.

We are not infrequently called to see patients at their homes, in whom cursory examination might lead us to diagnose intestinal obstruction. Where a history of previous lumbar pain has not been obtained, and where the existence of costo-vertebral tenderness, or pain radiating from the lumbar region into the groin, iliac region or testicle, has not been elicited, particularly when blood in the urine is absent, it has not infrequently occurred that an exploratory laparotomy has been advised.

That such a procedure may be fatal when we are dealing with a case of impacted ureteral calculus producing symptoms of ileus, I have had occasion to observe in a patient who was operated upon in one of our large hospitals. In this case the diagnosis of intestinal obstruction was made, and a laparotomy performed. Nothing was found, but some doubtful adhesions, and the patient succumbed shortly thereafter with uremic symptoms due to suppression of urine, and the autopsy showed a calculus blocking the lower left ureter.

During the last five years I have been able to diagnose seven such cases, in all of which there were symptoms of intestinal obstruction. Let us consider the vagaries in the symptomatology of ureter stone in a discussion of the following case, the clinical course of which, briefly summarized, would read:

Impacted, obstructing ureteral calculus, dilated ureter and renal pelvis, with manifestations now of intestinal obstruction, now of peritonitis, with fever, abdominal distension, rebound tenderness—completely relieved and cured through cystoscopic methods by causing expulsion of the stone.

CASE II.—L. S. B., male, presented the following clinical picture: A distended abdomen, constipation, severe pain in the left iliac fossa, rigidity of the left iliac region, distinct rebound tenderness, and by rectal examination a small indefinite mass, high up in a culdesac on the left side.

Cystoscopy, October 4, 1919, demonstrated that there was urinary retention in the left ureter and kidney, for about an ounce of turbid urine, containing some red blood cells, without pus, could be collected in a continuous stream when a catheter was inserted some ten cm. into the ureter, suggesting a calculus low down in the ureter, with dilated ureter and acute hydronephrosis. In spite of the relief that was afforded in this case by the emptying

of the kidney, distinct increase of the symptoms occurred on the following day, when the temperature rose to 102 degrees in the afternoon. It was surmised that by virtue of the swelling of the ureter, obstruction had again taken place, so that catheterization of the ureter was again in order. On the following day, October 5th,



FIG. 1.—Spear or arrowhead type of calculus leading to infection and secondary calculus formation. Cross section of a case of specimen of calculus pyonephrosis with a typical pyramidal stone incarcerated in the pelvis, the extrarenal pelvis being small. Calculus in the lower pole at D and C.

the tongue was coated, the left side of the abdomen was hard, with boardlike rigidity, the temperature was 103 degrees, and the patient was unable to take food. In short, symptoms suggestive of a combination of intestinal obstruction and possibly peritonitis.

On October 6th, therefore, catheterization of the left ureter was done again, and the same phenomena of retention of urine could be demonstrated. So great was this retention that pressure over the kidney and bladder region, as well as over the left iliac fossa, increased the flow through the ureteral catheter. Two ureteral

catheters were then inserted into the left ureter up to the kidney, and the cystoscope removed, the catheters being allowed to remain from the time of insertion, 3 p. m. on October 6th, until the next morning, 9:30 a. m.

On October 7th the abdomen was distinctly less rigid, the patient's condition considerably improved, the temperature having dropped to 100 degrees. The catheters were then slowly withdrawn simultaneously, and as they were pulled out, it seemed that an obstruction to their exit could be distinctly made out. As they were withdrawn this resistance was seen to be due to the expulsion of a ureteral calculus that was tightly adherent to the two catheters as it was drawn through the ureter, bladder and urethra without being dislodged—a most remarkable and unusual occurrence.

From then on the patient made an uneventful recovery.

URETERAL CALCULUS WITH REFLEX ANURIA.

Although it is well recognized by the urologist that unilateral ureteral obstruction by a stone, particularly by a descending ureteral calculus, may be followed by reflex suppression of urine, the urgency of instituting immediately very simple methods of relief is not universally recognized nor accepted by the internist. Therefore, not only for diagnostic purposes, but for the rapid amelioration or even the complete abatement of symptoms, you should have recourse to cystoscopy and ureteral catheterization, for this you will find is a most reliable and satisfactory means for renewing the activity of the kidneys.

URIC ACID CONCRETIONS AND URETERAL OBSTRUCTIONS.

The services of the urologist and cystoscopist will be found of great value in that interesting group of cases of urinary lithiasis in which uric acid concretions are passed from time to time into the ureteral tract, causing more or less complete obstruction by virtue either of the impaction of single concretions, or by reason of complete filling of a portion of the ureteral lumen with debris, concretions and altered blood.

When such a patient is referred to us with the history of lumbar, or obscure abdominal pain radiating into one or the other groin or iliac region, with definite urinary findings, such as the presence of red blood cells, our suspicions as to the true nature of the affection will doubtless be at once aroused. However, many are the cases in which during the period of examination of the urinary specimen, practically no blood cells are detected, and the local symptoms referable to the urinary tract are meagre or practically absent. In such instances we get a history of abdominal pain, and if we do not carefully elicit its exact localization may often miss the fact that the pain had on certain occasions been more severe in the lumbar region, and had at times shown typical evidences of radiation. It is when the ureter becomes completely blocked with debris, concretions



FIG. 2.—Calculi in hydronephrotic kidney dispersed over a large part of the lumbar area.

and altered blood, that no more excretion from the affected kidney can take place, and then the time arises when negative urinary findings are reported.

So, recently I was called in to see a patient, upon whom the diagnosis of ovarian trouble had been made by a local surgeon, and who received the advice to have the ovary and appendix removed. Not

satisfied with this diagnosis, it appeared to me that the cystoscope would certainly aid in clarifying the picture, and was not a little gratified when following the insertion of the ureteral catheter, not only a large amount of old retained urine was evacuated from the kidney, but a considerable amount of



FIG. 3.—Branching calculi in double renal pelvis.

débris, altered blood, and urinary concretions was collected and caused to be emitted alongside of the catheter into the bladder.

That the amount of the urine retained in the kidney and the ureter, as well as the amorphous material blocking the ureter was out of all proportion with what was collected at one cystoscopy, could be easily demonstrated in this case, when, on a second cystoscopic examination, some two days after the first, the affected ureter was found swollen and gaping. Manipulation with the ureteral catheter was succeeded by the extrusion of a considerably lengthy mass of brownish material in tapelike formation, in a manner simulating that of pus extruded through the ureter from a pyonephrotic kidney. Such masses of introureteral stuffing (if such term may be applied) may be of such firm consistency, that they retain their tapelike form for some time after they have been emitted and propelled by the intravesical current into the *bas fond* of the bladder.

When a ureter and kidney are freed of such material by irrigation through the ureter catheter, or if necessary by the use of the retention ureteral catheter for a period of twenty-four to forty-eight hours, rapid restoration to the normal may be expected.

URETERAL BLOCKAGE.

The experienced urologist not infrequently encounters cases of what may be justly termed aseptic fever in the urinary tract. Such febrile conditions are attributable to retention of urine in the kidney with blockage of some part of the ureteral tract, and may be unaccompanied by any of the usual products of pyogenic infection in either the urine from the ureter or pelvis of the kidney. In such cases I have been able to convince myself after repeated examinations, both with the microscope and by careful cultural methods, of the compatibility of the absence of white blood cells and microorganisms with high temperatures. Let us, therefore, be careful to avoid the error of early operative intervention when a case of high fever with lumbar pain, attended possibly with distinct enlargement of the kidney presents itself to us for advice, and let us not forget that the ureteral catheter may demonstrate merely retention of urine in a kidney due to the passage of a calculus or obturation of the ureter with débris, old blood and concretions. Whether minimal and transitory lesions of pyelonephritis or even embolic infectious foci in the renal parenchyma are present here, I have had no means of determining.

Some eight years ago I had the good fortune to cure a patient, in whom immediate exploratory operation on the kidney had been advised, by the mere introduction of the ureter catheter, the washing out of débris and amorphous material from the ureter, and the draining of the kidney by the ureteral

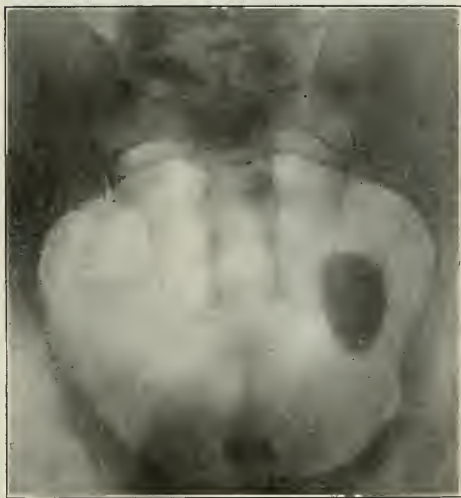


FIG. 4.—Large stone in lower ureter; case treated many years for so-called stomach trouble.

catheter for several hours. The temperature dropped immediately from 104° to normal, and the patient has had no recurrence during all these years.

Perhaps it is the medical man more often than the surgeon, who will be consulted by those interesting patients with chronic backache with occasional

hematuria, high blood pressure and other evidences of chronic nephritis, in whom the history has never aroused the suspicion of the existence of multiple urinary calculi as a factor in the clinical picture in these cases.

It is in such cases of so-called nephritis where, either because of the composition of the stone or the

again done and marked retention of urine was demonstrated in the left kidney, about forty-five c. c. of dark brown urine being collected. In the right ureter there was an obstruction at eighteen cm. from the bladder, one that could not be passed and no urine could be collected from the right kidney on this day.

Therefore the patient had evidently passed a calculus or calculi into the right ureter during the interval between the first and second examinations (about a week) with the establishment of complete blockage of the right kidney, and further, had developed retention in the sister organ.

Then uremic symptoms began to make their appearance, and on May 24th suppression of urine occurred, the symptoms of uremia becoming progressively more pronounced.

On the same day the obstruction in the right ureter was again encountered and no urine was obtained, while the obstruction in the left ureter was overcome and again almost two ounces of a



FIG. 5.—Catheter makes a loop in the ureter passing the stone.

stoutness of the patient, a satisfactory x ray examination is impossible, that most reliable and gratifying data are available, if we only apply the proper means of investigation, viz., the cystoscope and ureter catheter.

Thus, in the case of a male patient (J. S., fifty-five years of age) who had had occasional edema of the legs for some three years, attacks of diminution of the urinary output, and one attack of so-called gravel during which he is said to have passed some sand, a most striking example of how the gravity of the situation can be underestimated was presented to us.

Although refusing cystoscopy at the first consultation, because of the persistence of the hematuria, the patient finally submitted to the examination, on May 17, 1919, when we were able to disclose definite evidences of retention of urine in the right kidney with the presence of some microscopic pus, with urine from the left kidney also containing leucocytes.

A tentative diagnosis of infection of the right kidney pelvis with retention (hydronephrosis), probably bilateral calculous disease, with possibly a stone in the right ureter near the ureteropelvic junction was made.

Some five days later because of a severe attack of renal colic on the other (left) side, cystoscopy was



FIG. 6b.—Shows a drawing of the autopsy specimen.



FIG. 6.—Cystogram and ureterogram in congenital hydronephrosis and hydroureter.

dark brown fluid were evacuated from the left ureter. The catheter in the left kidney was allowed to remain *in situ*. Because of the increasing diminution of urinary output, the blockade of the right ureter, since practically no urine was passed from the left kidney for some hours, and since the retention

catheter had produced merely temporary relief without inciting the right kidney to functionate, it was decided to operate on the right kidney on the next day.

At operation an extremely hard and enlarged right kidney was found, and the right ureter could be felt enormously distended down to a point cor-

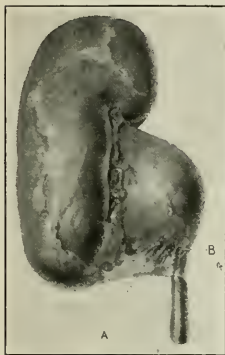


FIG. 7.

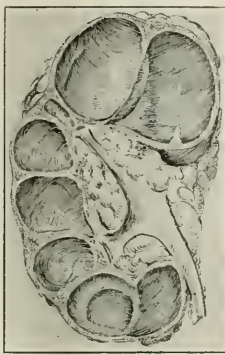


FIG. 8.

FIG. 7.—Congenital type of hydronephrosis in a case of so-called clinical pyelitis. External aspect of infected hydronephrosis of the congenital intermittent type showing the enormously dilated extrarenal pelvis, the stenosis of the ureteropelvic junction and the lesions which cause kinking of the ureter at its junction; adhesions over the outer surface of the kidney. A, stenosed junction; B, adhesions.

FIG. 8.—Drawing of section of tuberculous kidney converted into a sac with compartments filled with cheesy material.

responding to the site of the suspected calculus. Here a calculus was found impacted in the ureter. It was dislodged and removed, the kidney was de-capsulated and a tube inserted.

Although temporary improvement occurred, the patient succumbed about a week later with the usual symptoms of uremia.

CONCLUSIONS.

We were evidently dealing here with a case of chronic nephritis, complicated with bilateral calculous disease, in a man whose life might have been prolonged had the diagnosis been made earlier, perhaps years before, through the timely application of the cystoscope.

RENAL LITHIASIS.

Although the importance of the x ray examination of the urinary tract in the diagnosis of ureter and kidney stones is not undervalued by the urologist, the general surgeon who includes operations on the urinary tract in his domain, should learn by following the work of the urologic specialist, that the data obtainable through cystoscopy, as well as the application of the x ray and cystoscope and ureter catheter, are indispensable means for a complete evaluation of the indications for operative procedure. He who would operate upon a kidney or ureter for renal or ureteral stone in the light of our present knowledge, without resorting to the use of the cystoscope for additional information as to the function of the kidney, and as to the existence of an obstruction of the urinary tract, will not only frequently fail to find the calculus for which he

searches, but will soon learn that he cannot correctly set the indications for selective operative procedure when he bases his plans for intervention upon the findings of radiography alone.

I shall not dilate upon the identification of suspected shadows within the ureteral path by that well known method of introducing a shadowgraph or opaque catheter, nor shall I discuss in full the value of visualizing the pelvis of the kidney and ureter by the injection of opaque fluids, such as sodium bromide or thorium nitrate for the production of pyelograms or ureterograms; for these methods are well known to all of you. But I shall merely present a number of pictures and let them be accompanied by comments on diagnosis and clinical course that in my opinion may be of some value to those who have not the opportunity of encountering large numbers of cases in this field; for to them these pictures may be of more than passing interest.

If the röntgenologist is able to demonstrate a well defined renal shadow in most of his radiograms, you will be greatly aided in the localization of the suspected stone within the renal area and can often accurately gauge its site so that search at the operating table will not be prolonged.

Where we are dealing with a small flat numular stone, situated in the pelvis of the kidney, the indications for intervention will depend greatly upon the symptomatology, the degree of pain and discomfort, the presence and the amount of hematuria, and particularly upon the cystoscopic findings, whether these demonstrate the existence of infection or blockage either of the pelvis or ureteropelvic junction. It is these two factors that play the greatest rôle in determining our attitude towards surgical procedure, and for the elucidation of which the urologic methods of cystoscopy, the application of the shadow-graph catheter, and more rarely a pyelography, are essential.

When we are dealing with a calculus of the pyramidal or spear-head variety, with a beak or apex pointing down and into the ureteropelvic junction, we may feel confident that the time will soon arrive when considerable blockage of the ureteropelvic junction may take place. Such calculi are prone to be associated with infection, and should be removed at the earliest date (Fig. 1).

Although it is true that the experienced interpreter of the röntgenogram can foretell much regarding the pathology of a kidney harboring calculi from a careful study of the renal shadow, the size,



FIG. 9.—External surface of a case of congenital hydronephrosis with marked attenuation of the upper and lower poles, where a membranous wall covers the fluid content; the extrarenal pelvis is pyriform and dilated, the ureter being extremely small, particularly at the ureteropelvic junction, where the abnormal insertion is accentuated by reason of adhesions binding the lower portion of the pelvis to the ureter. A, extrarenal pelvis; B, narrowed junction.

shape and number of the intrarenal shadows, their change in position, excursions and configuration, much additional information will be forthcoming, if the urologist will insert the opaque catheter for purposes of further localization and diagnosis.

Thus, in (Figs. 2 and 3) the mere consideration of the x ray plate throws much light on the type of kidney present, for in Fig. 2 the multiplicity of the shadows, their wide separation occupying a territory from the iliac crest almost to the eleventh rib, even without a distinct renal outline, proclaims the condition to be one of a hydronephrotic or pyonephrotic kidney of large size with multiple calculi.

So, too, in Fig. 3, the two well separated groups of dendritic or branching calculi representing casts of two distinct pelves, suggest the diagnosis that had been confirmed through cystoscopic means of the existence of two separate pelves filled with branching stones. Identification of other shadows that appear to stimulate calcified glands by reason of size and irregularity is greatly aided by use of the cystoscope and shadowgraph catheter. Such large shadows as depicted in Fig. 4 would produce some hesitation in the mind of the casual interpreter as to whether a calculus in a diverticulum of the bladder, a vesical or ureteral calculus were at hand. It was the cystoscope alone that permitted the exact localization of the enormous ureteral calculus subsequently removed through extraperitoneal ureterotomy.

Not only in the identification of suspected ureteral stone and in the exclusion of certain extraureteral shadows from consideration, is the shadowgraph catheter of value, but also in the localization of shadows within the renal area. A properly inserted shadowgraph catheter frequently gives valuable information regarding the situation of stones within the kidney. In hydronephrosis, when the catheter can be made to enter the kidney proper (and not when it is arrested at the ureteropelvic junction) a wide excursion of the ureter catheter into the flank tells such a complete story of renal enlargement that the diagnosis of hydronephrosis with or without infection can be readily made without resorting to the more dangerous procedure of pyelography.

In cases of multiple ureteral calculi, we are likely to be misled by the shifting of the shadows, by their mesial position, and even cystoscopy, if carried out only once, may reveal normal urine although possibly diluted from one or both ureters. The shadowgraph catheter not infrequently makes either a loop or a complete turn in the ureter, such as in Fig. 5, demonstrating the existence of a hydroureter or a dilated ureter, and the tortuosity of one or the other ureter and its redundancy can infrequently be demonstrated by the wide excursion into the iliac region taken by the opaque catheter. Occasionally in a case of negative or doubtful x ray, a ureterogram will demonstrate ureteral dilatation above an impacted calculus, and give valuable indications for intervention.

Although the visualization of the ureter and pelvis by the injection of opaque fluid is exceedingly valuable at times, its employment should be restricted by reason of certain dangers that always have and will attend such methods. Fortunately in sodium bromide we have a fairly reliable and safe

solution, but with the enlargement of our experience there follows *pari passu* a restriction in the sphere of application of pyelography. Its importance in certain cases, however, cannot be denied.

In hypernephroma the pelvis of the kidney may be drawn out and distorted in what is known as the spider form. Occasionally the existence of ureteral stenosis can be demonstrated to our satisfaction as was the case in a patient who had a closed tuberculosis of the kidney with ureteral stenosis.

So also in children with congenital dilatation of the ureters, or with dilatation of the ureters and pelvis of the kidneys due to peripheral urinary obstruction, the filling of the bladder with sodium bromide and placing the child in the Trendelenburg posture, may permit of the filling of the ureters and their graphic demonstration as dilated tortuous channels (Fig. 6) and hydronephrosis.

Not only in adults, but in children, as well as in infants, the development of the modern children's cystoscope has made it possible to diagnosticate with great accuracy, lesions of the bladder and kidney by visual examination, by ureteral catheterization and by the application of pyelography.

It has been my good fortune to be able to determine in a number of cases, and recently again in a little girl two years of age, that the stereotyped diagnosis of pyelitis of children was erroneous, for the cystoscope and ureter catheters gave proof that the right kidney contained considerable pus, and that there was some retention of urine in the renal pelvis. A diagnosis of infected congenital hydronephrosis was made, nephrectomy was done, and a beautiful example of one of the forms of congenital hydronephrosis with a pin-point opening at the ureteropelvic junction (Fig. 7) was obtained at operation. The baby made an uneventful recovery.

So also the diagnosis of tuberculosis can readily be made, and in other cases enormous patent ureteral orifices will at once suggest to us the diagnosis of bilateral or unilateral congenital hydronephrosis and hydroureter, or hydroureter and hydronephrosis dependent upon some obstructive condition in the urethra, or dependent upon some nerve lesion. In such patients the introduction of sodium bromide, or other opaque fluid and the placement of the patient in the Trendelenburg posture will permit of the regurgitation or reflux of solution into the ureters, showing them to be dilated and tortuous.

In my own experience I can say without hesitation that it is in tuberculosis of the kidney that both the internist and surgeon are likely to delay surgical intervention, by reason of dilatory application of cystoscopic methods, and because the majority of such patients are diagnosticated and treated for a long time as cases of cystitis. Whenever an adolescent or middle aged individual gives a history of urinary frequency, particularly of nocturia, without gonorrheal infection, without history of instrumentation, or previous attacks of cystitis, a cystoscopic examination should be advised. Day after day patients are brought to my office, in whom the latter lesions, such as I shall show you here, are found, miliary tubercles with superficial ulcers, characteristic ureteral lesions on the affected side, with tubercles and a contact ulcer over the posterior wall, deep

ulcers with total erosion of the ureteral lip, with extensive and marked retraction of the ureteral orifice—and in these nephrectomy will show a kidney in the stage of advanced cheesy degeneration (Fig. 8), pyonephrotic kidneys that have been involved for months and even years, and a multitude of other interesting pathological changes. An important circumstance is the frequent separation of cheesy abscesses from a communication with the renal pelvis by stenosis of a calyx, a process which accounts for the absence of tubercle bacilli and the apparent cure in some cases after the use of vaccines. Other specimens are seen where a portion of the pelvis and kidney which are tuberculous are distinctly segregated from that portion of the pelvis carrying the ureter by a similar stenotic process. In such kidneys tubercle bacilli may be absent for a time, but the lesions about the corresponding ureter will be recognized by the cystoscopist.

RENAL HEMATURIA.

I can but touch upon this most interesting theme. Most important is it, I believe, to submit patients with hematuria to investigation with the cystoscope during an attack of hematuria and not to wait until the hematuria has subsided. How often is much valuable time lost when the urologist is requested to make a diagnosis in the free interval, when neither kidney is bleeding.

When the renal bleeding is unilateral, you should have light as to whether such hematuria is due to stone, to tuberculosis, intrarenal papilloma, angioma, so-called idiopathic or essential hematuria, hypernephroma or carcinoma, or more rarely to hydronephrosis, ureteritis, pyelitis cystica, or to polycystic kidneys.

The diagnosis of hypernephroma will not be difficult to make in the advanced cases, but when we are confronted with a small tumor, which has produced no distortion of the pelvis, or insufficient to be demonstrated by the pyelogram, an exploratory operation with a presumptive diagnosis may have to be resorted to when the unilateral nature of the bleeding has been proven, and recurrences of the bleed-

ing have been sufficient in number to warrant intervention. So-called idiopathic or essential hematuria responds remarkably in some cases to decapsulation, and I have a number of cases in my records where unilateral and bilateral decapsulation have been rewarded by complete cessation of the hematuria.

Occasionally you will encounter various forms of lesions in congenital types of hydronephrosis with secondary concretions that occasion most alarming hematuria. In a young girl operated upon by me recently the existence of a hydronephrosis could not be definitely determined because of stenosis of the ureteropelvic junction, making the introduction of the ureter catheter into the pelvis impossible, so that the differential diagnosis between tumor and hydronephrosis with calculus could not be made. At exploratory operation a nephrectomy revealed a beautiful specimen of hydronephrosis (Fig. 9).

Of late years it has come to my notice that cases of so-called cystitis cystica where there are multiple minute cysts in the bladder, present a remarkable clinical picture when they are associated with renal infection or with renal bleeding. In such cases it is difficult to determine with positiveness whether a similar cystic lesion of the pelvis and ureter is responsible for the copious bleeding, or whether the concomitant chronic nephritis or a so-called essential hematuria is to be held accountable. During the last three years, I have practised recapsulation in two cases with remarkable success, and in a recent case I not only performed decapsulation, but also curetted thoroughly the pelvis of the kidney through a nephrotomy opening, the sensation transmitted to the manipulating hand being sufficiently accurate to permit me to determine that the rough, gritty interior of the pelvis was converted into a smooth surface by the action of the spoon. My experience with a previous case leads me to believe, however, that although I was able to destroy the cysts in this manner, that the decapsulation of the kidney and not this process of intrapelvic curettage was responsible for the immediate abatement and subsequent cessation of the hematuria, noted some four days after the operation.

Urine Examination as an Index of Renal Disease*

By HAROLD W. JONES, M.D.,
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The ordinary examination of the urine is of less significance as an index of renal disease than it was formerly considered to be. The functional tests are becoming more and more important in the determination of nephritis, active or latent. At times even these tests fail to bring to light existing disease. It is therefore necessary to judge all cases from three points of view: the symptomatology, the urine examination, and the function. An attempt to reach a satisfactory conclusion from one of these is usually

futile. Even today it is a too common practice to judge the renal status as good or bad from one examination of urine. Repeated examinations should be made at different intervals during the day and under various conditions. There are several simple functional tests which can be performed with very little inconvenience to the patient or physician which will give helpful information.

Nephritis, as we know, is frequently patchy in distribution. One portion may be diseased and another in a fairly healthy state; also as portions of

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the kidney function while others are quiescent, it follows that normal urine may be passed even though the structure as a whole is damaged.

If there exists a patch of nephritis, the remainder of the kidney will be called upon to take up the extra work. Nearly every kidney is capable of extra work by reason of its reserve power. The patch of nephritis may not be extensive enough to cause severe symptoms, and the outlook as to life is good; yet because the diseased portion is continually draining, the urine contains albumin, casts, numerous white blood cells and sometimes red blood cells. The prognosis if judged from the urine alone in these cases would of necessity be guarded, but the other signs and symptoms frequently do not warrant such a conclusion.

The following statistics and cases are chosen to show how deceptive results of urine examination may be. It will be seen that the urinary findings may signify the presence of severe renal damage when the patient is functionally and symptomatically well. And on the other hand, they fail, partially or completely, to demonstrate existing disease even though the patient is in critical condition from seemingly far advanced nephritis.

McLean (1) in the examination of fifty thousand healthy British troops, found albumin in six per cent. and casts in two per cent. P. Ameule (2) reported blood, pus, and casts in the urine of discharged French soldiers weeks after their attack of nephritis, although functionally and symptomatically they were well.

CASES WITH MARKED NEPHRITIS IN WHICH THE URINE IS NEGATIVE OR NEARLY SO.

In our studies in war nephritis, at General Hospital No. 9, many patients who were well from the viewpoint of function and symptomatology showed albumin and casts though one and two years had elapsed since the onset of the disease. The one fatal case in this group had a phthalein output of seven per cent., a blood urea of 396 mg., and a fixation of specific gravity of 1009-1010. Yet the urine was negative except for a low specific gravity in half the specimens examined.

CASE I.—J. 4897, male, aged sixty, a lead worker, was admitted complaining of dyspnea of the Cheyne-Stokes type. There were some evidences of pulmonary edema. Throughout his stay the urine was practically negative except that the specific gravity was low, with occasionally a faint trace of albumin and hyaline casts. The functional tests were in keeping with the severity of his symptoms. His blood nitrogen was increased, the phthalein output was thirty-five per cent., and the two hour collection showed a marked fixation of specific gravity. Several weeks later he insisted on going home. His symptoms were less acute, but the phthalein was decreased and creatinine in the blood increased. On discharge his urine was still negative. In the course of several weeks he was readmitted. He was acutely ill and died within a week after admission. The examination of the urine still failed to give evidence of the severity of his condition.

CASE II.—J. 3478, male, aged forty-six, had a severe grade of nephritis with acute uremia, which rapidly proved fatal. His phthalein test showed an

output of twenty per cent., the blood nitrogen was increased and the specific gravity was fixed at 1010 and 1011. Yet in the twenty urine examinations fifteen of them were practically negative, except for the low specific gravity.

CASES CLINICALLY WELL WITH URINE STILL SHOWING SIGNS OF DISEASE.

Another patient who was seen recently is C. B., aged thirty-six. Three months after discharge he was working daily and feeling very well, but the urine showed a trace of albumin, casts and few red blood cells.

CASE III.—5016, male, aged forty-eight, had an acute exacerbation of a chronic nephritis, following acute tonsillitis. Throughout the course albumin, casts and red blood cells were present. Three months later when he was back at work and feeling finely the urine still showed the same signs.

CASE IV.—J. 4780, male, aged forty-seven, had an acute exacerbation of a chronic nephritis. On admission the urine was negative, while the next day it showed a cloud of albumin and a few casts. The phthalein output was thirty-five per cent. and the blood nitrogen increased. On discharge his edema and dyspnea were gone, the blood nitrogen normal and the phthalein forty-five per cent., but the urine still showed albumin and casts.

CASE V.—J. 3869, female, aged thirteen, had an acute exacerbation of a chronic nephritis. On discharge, although the phthalein output was fifty per cent., blood nitrogen normal and her headache and dyspnea gone, the urine still showed cloud of albumin and many granular and hyaline casts.

SPECIFIC GRAVITY.

The estimation of the specific gravity is one of the most, if not the most, important part in urine examination. In the cases just outlined, and in many more, the only reliable urinary finding, in the face of severe renal symptoms, is a low specific gravity. A urine with many casts and much albumin but normal specific gravity may be of less significance than one with continual low specific gravity, but few, if any, other abnormal findings.

The presence of casts and albumin in the urine is evidence that structural damage is present in the kidney. It is probably the earliest sign of renal disease and is a simple method of determining the presence of such disease. Therefore it is a valuable test. It is not the purpose of this paper to discredit the examination in itself, but to warn against the judgment of a renal case by single examination, and to show that as an index of the renal status, urine examinations are misleading. Positive urinary findings should serve as a signal for further examination into the renal condition.

FUNCTIONAL TESTS.

Lack of time on the part of the physician and loss of time to the patient is no longer sufficient excuse to prevent the performance of functional tests. The phthalein test can be carried out in the evening or before going to business and the patient go to work, voiding at the stated intervals. The two hour fixation specific gravity test may also be performed at home or at business. The normal diet is satisfactory; place the fluid intake at fifteen to eighteen

hundred c. c. and give the patient marked bottles. Another simple test (3) is the comparison of the volume ratio of night and day urine. The total volume for day is collected from eight a. m. until eight p. m. and for night from eight p. m. until eight a. m. No food or fluid is taken during the night period. The normal ratio is day, three to four times as great as night.

In renal cases the night volume may be equal or greater than the day. These three functional tests in the majority of cases will give a fairly accurate idea of the functional capacity of the kidney.

SUMMARY.

1. The ordinary urine examination may lead to erroneous conclusions regarding renal conditions.

2. Many cases of nephritis although functionally and symptomatically improved may show casts and albumin months after discharge from the hospital.

3. Many patients with severe grades of nephritis pass urine that at intervals is negative or nearly so.

4. A urine of continued low specific gravity is of more importance than one of high specific gravity,

even though other urinary signs of disease are present.

5. The presence of abnormal urinary findings should serve as a signal for further investigation of the renal status.

6. The two hour fixation specific gravity test, the phthalein and the estimation of the volume ratio of day and night urine are simple functional tests that can be performed with little inconvenience to the physician or the patient.

7. In order to gain a satisfactory estimate of renal disease one must carefully consider the results of urine examinations, those obtained from the performance of functional tests and the symptoms and signs presented by the patient.

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1805 PINE STREET.

The Importance of Roentgen Examination in the Early Diagnosis of Renal Calculus

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The value of the x ray as an aid in diagnosis of many common but indefinite conditions is not sufficiently recognized by the general practitioner. The public is becoming educated to the use of modern methods in medicine as in business and the physician should call to his aid every possible resource which will increase the acuteness and accuracy of the senses. This is particularly true in making a diagnosis of renal calculus. Frequently the symptoms are vague and indefinite even when a calculus of large size is present. It seems almost inexcusable that these cases are allowed to go without radiographic study until the stone has reached so large a size that it, together with the accompanying infection, has practically destroyed the entire kidney. Every patient showing indefinite abdominal symptoms extending over a long period should have the benefit of röntgen study before the condition has a chance to become so far advanced that removal of the kidney is the only procedure left.

A careful history is important in all obscure abdominal conditions. This should include not only recent disturbances but careful examination for symptoms which may have been present years ago. Every calculus must begin as a small affair and we frequently have symptoms which, if not definite, will at least direct our minds in the proper channels. These symptoms usually occur when the stone is small and long before the patient consults the physician for the indefinite symptoms of later stages. In the majority of cases the occurrence of one or more

attacks of renal colic will attract the attention, and even if they have occurred years before are very important.

In a typical case the pain is intense with collapse, feeble rapid pulse and cold clammy skin. The pain is paroxysmal in character beginning in the back and radiating down the ureter to the testes, labia or thighs. The attack may pass off in a few hours or last several days. There is frequency of micturition and the urine contains blood which at times can only be discovered by the microscope. In some cases these symptoms may be so slight as not to incapacitate the patient, but the history of their occurrence is important. In cases of slight renal colic, or in cases in which there is no colic at all, the symptoms are referred to other organs. Many of these patients are treated for floating kidney, cystitis, gallstones, chronic rheumatism, lumbago, intercostal neuralgia, dyspepsia and uterine diseases. It is in these latter conditions which do not respond to appropriate treatment that the aid of the x ray should be sought. Since the more constant use of the x ray in indefinite cases of dyspepsia many cases of renal calculus are being discovered accidentally in the routine gastrointestinal examination.

The indefinite symptoms which may be present and which should excite our interest are:

1. *Pain* may be of a mild, but continuous character. At times it may be only a dull aching or sensation of weight. Exertion or sudden moving may frequently bring it to the patient's notice. Such in-

definite pain may have extended over a period of years, being more noticeable at some times than at others. It may be definitely localized or may be referred to any organ in the abdomen. By palpation



FIG. 1.—Case I.

we may obtain tenderness in the back or directly over the kidney. Such indefinite symptoms may lead the physician to believe he is dealing with some other abdominal condition, but the possibility of calculus should always be borne in mind.

2. *Bladder disturbances* are frequently the only symptom of calculus. This takes the form of a mild cystitis, with periods of frequency, urgency and burning. The urine shows slight traces of albumin due to blood or a small amount of pus. When these symptoms continue over a long period, particularly if associated with indefinite pain or soreness in the abdomen or back, a complete examination of the genitourinary tract should be made. The distress of lumbago, at times persistent and at others intermittent, which resists the ordinary treatment, should direct our attention to the possibility of calculus.

3. *The symptoms of gallstones* frequently resemble those of urinary calculus and vice versa. In the absence of jaundice the possibility of urinary calculus should always be thought of and appropriate x ray study made.

4. The symptoms of chronic rheumatism, that all embracing disease, frequently have their origin in an undiscovered and unthought of urinary calculus.

5. *The digestive disturbances* due to calculus may simulate almost any disease. A careful watch should be kept in all gastrointestinal x ray studies to detect the possible presence of a stone. Frequently stones are thus discovered which may be the cause of the condition, or on the other hand, may have had no relation to it at all. Every case of suspected stone or indefinite abdominal symptoms should therefore receive at the earliest possible time a complete x ray examination.

Calculi differ in the intensity of the shadow which they cast, but in every case, except in the very fat

patient, we expect to show evidence of stone. Calcium oxalate casts the darkest shadow, urate comes next, while phosphate gives the least shadow. Pure uric acid will not cast a shadow. As a rule you will find this calculi partaking of the makeup of two or more elements, so the percentage of failure to demonstrate calculi is slight.

Preliminary preparation before x raying the kidneys is important. The patient should receive an active purge such as castor oil the night before, followed the next morning by two or more high enemas. This will remove the intestinal contents and especially gas which shows clearly on the plate. The patient should be fasting from the day before. All clothes must be removed and a tube of medium penetration used, so we can get the proper differentiation of the organs. A good plate will show the outline of the kidney itself. The patient is placed upon the back and firm compression made, with a medium diaphragm, over the abdomen. If the patient can be placed in the Trendelenburg position it will materially add to the clearness of the plate, as in this way the intestines are displaced out of the way. To prevent movement the patient should hold the breath during the exposure. Plates must be made of both kidneys as the pain may be referred to the opposite side. Plates are also made of the ureters and the bladder.

The recent introduction of the Potter-Bucky diaphragm has been a great help in x ray examinations for calculus. This apparatus cuts out the secondary rays which have a tendency to fog the plate and thus obscure the image. We are thus able to get much clearer outlines. One large film is used between two intensifying screens and we thus obtain both kidneys, ureters and bladder on the one plate. The

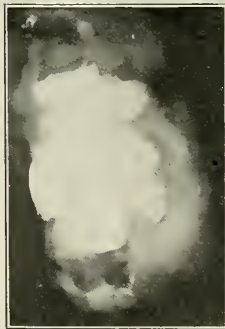


FIG. 2.—Case IV.



FIG. 3.—Case V.

outline of both kidneys is usually quite clear and comparison of the two kidneys can be made. Many stones of slight density are brought out and the accurate position of both kidneys obtained. This technique has been a great advance in this work.

There are certain conditions which may be mistaken for calculus and which we must be careful to rule out. Gas in the intestines, or hard fecal masses may be misleading, but this is usually eliminated by careful preparation of the patient. Again, calcareous mesenteric glands or phleboliths may simulate

calculus shadows. This can sometimes only be eliminated by taking plates before and after passing a metallic urethral catheter or by injecting the ureters and kidney pelvis with a dense metallic solution such as argyrol. Concretions in the appendix have sometimes been mistaken for stone. The importance of this subject has been brought to my attention by a series of recent cases in which x ray diagnosis of calculus had been made only after the kidney had been so badly damaged that nothing short of radical removal would be of benefit. These patients had been subjected to a dangerous operation, usually at an age when they were least able to stand it, and an additional burden was thrown upon the remaining kidney at a time when degenerative changes were beginning and when compensatory action of the remaining kidney was not easily obtained. If these patients had been x rayed early and the calculus discovered when it was small, nephrectomy with removal of the calculus would have saved the patient's kidney and relieved them of the hazard of maintaining proper elimination with one less kidney than nature intended. In addition to the calculus itself they have had to contend with the accompanying septic infection with absorption of toxins and its consequent anemia and ill health, and possible focus of infection for numerous other ailments. The general practitioner on whom this responsibility rests should keep prominently in mind the possibility of calculus and not hesitate to avail himself of the aid offered by röntgen examination in these obscure abdominal conditions. In this way life would be prolonged, indefinite symptoms relieved, and the consequent septic focus removed.

The following case histories with x ray findings serve to illustrate this unfortunate class of cases:

CASE I.—Mrs. B. K., aged forty-eight, was taken ill a few days before admission with sudden severe pain in lumbar region. Since this attack the urine had had a milky color with marked burning during micturition. Patient had urgency and frequency of urination. The patient had been well except for ovarian trouble twenty-one years ago, for which she was operated upon. For a year or more the patient had had a dull ache in the lumbar region. During the last few weeks this had extended down the left thigh. The patient was poorly nourished. Lungs showed flat type chest, expansion poor, percussion showed dullness in left axilla, auscultation showed a few fine crackling râles over the whole chest. The abdomen examination showed no masses. Lower poles of kidneys were palpable and tender.

X ray examination showed the left kidney much enlarged. The pelvis and calices were filled by a large dendritic calculus. Along the outer margin were several smaller calculi and in the lower pole of kidney were several small calculi. Nephrectomy was done and patient discharged convalescing.

CASE II.—Mrs. A. R., aged thirty-two, was admitted complaining of pain over lumbar region posteriorly and over the stomach. Present illness began with chills and fever and general malaise, which became gradually worse. The patient had had the usual diseases of childhood, including typhoid fever. A history of pain over the right lumbar region radiating down to the groin and coming on occasionally for several years was given.

X ray examination showed a large triangular calculus in pelvis of right kidney. Nephrectomy was done and patient was discharged convalescing.

CASE III.—F. B., aged thirty-nine, admitted to hospital with pain in centre of abdomen and difficulty in breathing. No past illness except influenza. Patient had had attack of pain in the abdomen occasionally for a year. Also had several attacks of bladder trouble which lasted several months at a time. For the last year had been losing weight and was always tired out. Physical examination showed marked emaciation.

X ray examination showed a large calculus in the pelvis of the right kidney with numerous small calculi in the calices. The kidney shadow was much enlarged. An anterior incision was made and large cystic kidney was brought into view. The patient collapsed and incision closed immediately. Six weeks later the patient was in good condition and was again taken into operating room and a right nephrectomy done; patient discharged convalescing.

CASE IV.—A. M., aged forty-five. Admitted to hospital complaining of chills, fever, loss of weight and obscure abdominal pain. Condition had been coming on gradually for several months with increasing malaise and occasionally attacks of chills and fever. Had had a dull ache in abdomen for years which at times would disappear. Never had had acute renal colic and little bladder disturbance. Physical examination showed marked emaciation, abdomen tender on right side but no mass felt.

X ray examination showed a large dendritic calculus of the pelvis of right kidney. Nephrectomy was done and patient discharged convalescing.

CASE V.—Mrs. A. L., aged forty-three. Admitted complaining of frequency and burning on urinating, pain in the abdomen and chronic indigestion. Patient had suffered for years from indigestion which occasionally was associated with attacks of pain in the abdomen and back. Urinary symptoms began about two years ago and are gradually getting worse. Physical examination showed nothing abnormal except some tenderness on the right side.

X ray examination showed a large shadow in the pelvis of the right kidney.

A nephrectomy of right kidney showed a large dendritic calculus; patient discharged convalescing.

CONCLUSIONS.

1. There are many cases of obscure abdominal conditions without localized symptoms, in which a diagnosis cannot be made by ordinary methods.
2. In the early history of these patients there is often something to direct attention to the kidneys.
3. At the present time with proper apparatus, experience, and not too fat a subject, it is possible to detect renal calculus in the majority of cases by means of the x ray.
4. Early use of the x ray will make the diagnosis and save subsequent destruction of the kidney.
5. The responsibility for this course rests largely with the general practitioner, and the plea is made that these cases be given the advantage of thorough examination including the x ray, so that proper treatment may be instituted early and serious damage to the kidneys avoided.

Some Observations on Contracture of the Neck of the Bladder*

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This interesting and somewhat perplexing clinical entity appearing in literature under a great variety of names presents a great many unsolved problems. Prostatism sans prostate, fibrous prostate, and contracture of the neck of the bladder, and perhaps atrophy of the prostate, are some of the many names applied to this condition which presents itself to the clinician as a contracted outlet of the urinary bladder with typical obstruction to the emptying of this organ. There are still many moot points connected with the pathogenesis, diagnosis and treatment, and it is hoped that these brief remarks will throw some light on this condition and at the same time start an instructive discussion.

It is interesting to examine these patients through the open bladder and to see how regularly the same picture of a contracted neck or a contracted orifice of the bladder is presented. Despite this regular picture, the microscopic examination of specimens removed from the circumference of this outlet shows quite a variety of microscopic pictures which have been fully described by numerous authors. In view of the fact that many of these patients come for relief only years after the commencement of their disease, it is easy to understand why the initial lesion is so difficult to determine. In Chetwood's interesting case, reported before the section in genitourinary diseases of the American Medical Association, in 1912 (1), a complete postmortem examination of the whole sphincteric orifice and the prostatic urethra was made. In this particular case, there apparently had been chronic productive inflammation which was accompanied by infiltration to a considerable distance involving the tissues from the sphincter muscle down to the glands. There was added, as is usual, a mild suppurative process, which is probably a secondary invasion following the older fibrosis of the neck of the bladder. In addition to this narrowing of the outlet by a circular contracture, there are occasionally encountered small globular fibronata which presumably are part of the general fibrotic change. Many of these cases exist or develop as pure contractures unassociated with any hypertrophy or adenoma formation in the prostate; and those cases associated with adenoma of the prostate, where a bar seems to be developed across the neck of the bladder by the growth of the adenoma, are not under discussion at present. These cases, in my experience, occur in older patients and can readily be distinguished by cystourethroscopy. The cases of contracture of the neck that I have seen almost always occurred in young males who frequently recognized their disability when they realized that they were not able to empty their bladders as expeditiously as their fellows. Some of these cases, it seems to me, date back to early life and are similar to cases reported by Bransford Lewis (2) (Cases I, II and IV). About the same time that Bransford Lewis

published his series of cases of prostatic obstruction of obscure type, I brought together a series of cases, some of which surely belong to this particular group. In 1915 I published observations on eleven cases of chronic retention of urine in young boys (3). A number of these cases were explicable on the basis of mechanical obstruction to the outflow of urine from the bladder, such as strictures of the urethra, small meatus and tight prepuce; others were due to intravesical conditions, such as diverticula of the bladder; others, again, seemed due to a neural disturbance either in the brain or the spinal cord. In addition, however, to these fairly clear cases, there was a group of some seven cases in which no evidence of mechanical or neural disturbance could be made out and which were interpreted as due to a relative disharmony between the sphincteric muscle and the detrusor muscle of the bladder.

These cases usually present a picture which we see in contracture of the neck of the bladder in older patients, but owing to the fact that they are usually very young, it is impossible to urethroscopically examine the patients and determine the presence of what seems to me to be a rather typical picture of a contracture of the neck of the bladder. All these patients referred to, just as in those cases of contracture of the neck in adults, allowed easy introduction of instruments into the bladder without encountering any obstruction. They reminded me of cases of spasm at the lower end of the esophagus, so-called cardio-spasm, in which the lower end of the esophagus is contracted and the esophagus above is enormously dilated; instruments properly guided will pass through the cardioplastic area without the surgeon's feeling any obstruction, just as instruments are introduced into the bladder in contracture of the neck of the bladder without the surgeon's recognizing any obstruction. In the paper referred to (3), I called attention to the possibility of some of these peculiar youthful cases developing into the adult type of contracture of the neck of the bladder. As far as my study of these infantile cases goes, they develop just as the adult cases do, marked trabeculations of the bladder with formation of pouches of various sizes (diverticula), secondary dilatation of the ureters and hydronephrosis. When infection is added, many of these cases end fatally, but when a case can be carried along to the age when urethroscopy can be performed, one finds that the picture presented at the neck of the bladder and the posterior urethra is identical with that seen in adult cases of contracture of the neck of the bladder. In one case of this sort that was carried along with dilatations of the neck for a number of years, operation through the bladder disclosed what urethroscopy had helped us in diagnosing; a fibrotic contracture which reduced the orifice of the bladder to a minute opening. In looking over my cases of contracture of the neck in adults, I have been impressed with the fact that many of these patients stated that their trouble

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started in early life, just as was reported in the cases of Bransford Lewis mentioned above. It, therefore, seems to me that in all these cases we should search carefully the previous history of the patient so that we can determine whether the process started in infancy or not, as this may eventually help to clarify the pathogenesis.

In the literature of this subject, considerable space has been given to the question of primary atony of the bladder without obstruction. Whether this really exists without a disease of the nervous system, it is difficult to state definitely at the present time because many of the cases so classified have not had the benefit of a complete exhaustive study and of the Wassermann test. It is strange how frequently a mild contracture of the bladder with residual urine would suggest the diagnosis of atony of the bladder musculature, which diagnosis on further study might be overthrown when the urethroscopic picture suggested the proper interpretation. Other cases in which no definite nerve involvement is demonstrable, masquerading as atony of the bladder, also clear up when the spinal fluid or blood for a Wassermann test proves positive; still, every once in a while one sees a case in which instead of the usual hypertrophy of the bladder muscle behind the contracted neck of the bladder, the bladder wall is thinned out as if the muscle had undergone extensive atrophy. Whether these rare cases associated with a contracted neck of the bladder are due to an inherent weakness in the bladder muscle behind a contracted outlet, or whether they are due to some peripheral neural disturbance, has not been clear to me.

DIAGNOSIS.

For a number of years cases of contracture of the neck of the bladder have been published more and more frequently, but even at this time the clinical entity is not fully appreciated by the average physician or surgeon. The diagnosis of contracture of the neck of the bladder is suggested by the youth of the patient in whom the residual urine is found and when the rectal examination shows a small prostate. This suspicion is verified by the cystourethroscopic examination which I believe shows a rather typical picture. The floor of the supramontane urethra (that is, the prostatic urethra between the bladder cavity and the verumontanum), shows directly above the verumontanum a relative falling away (cavity) to be immediately followed by a more or less thick raised bar which forms the inferior circumference to the fibrotic neck. In the typical uncomplicated case there is no lateral lobe enlargement, and this picture just described, together with the presence of residual urine, makes the diagnosis of contracture of the neck which has been regularly disclosed by suprapubic exposure. In my experience, lateral sphincteric obstruction has been rare.

TREATMENT.

In the treatment of this condition many difficulties are presented, because almost everybody who has written on the subject has obtained satisfactory results with a particular type of treatment that he has advocated and possibly originated. Thus, we have cures reported with simple dilatation of the

neck through the urethra, with the cold punch operation by Young, with the hot punch operation by Caulk, with the perineal canterly section of the neck by Chetwood, with the wide excision of the neck by Buerger, with the high frequency cauterization by Bugbee—to give only a few of the methods which have been advocated. It is apparent to anyone who sees these cases that no treatment produces anything like one hundred per cent. cures. In prostatic hypertrophy it was originally thought that the Bottini procedure was curative. A later study of these cases, however, showed that the Bottini operation was far from satisfactory; and so it is with many of the procedures that we are now using in contracture of the neck of the bladder. Personally, I have regularly advocated suprapubic approach, as no matter how carefully urethroscopy is performed in these patients, one not infrequently finds other conditions either secondary to or complicating contracture of the neck of the bladder, whose presence had not been suspected. One is influenced, therefore, by what is found on exposing the neck of the bladder, as to the procedure to be followed. Formerly I attempted with the Paquelin cautery to excise the posterior circumference of the sphincter well into the prostatic tissue. This cautery wedge excision apparently led to recontraction and reformation of an obstruction. Subsequently I attempted a broad excision with the scissors of the posterior circumference of the neck of the bladder well into the prostatic tissue, and on the whole have been much pleased with the relief given my patients. That all of the cases with these wide excisions are not definitely cured, I called to your attention last year when I presented a case in which operation had been performed in November, 1915, in this way, the patient years afterward developing a recontracture of the neck which had to be excised for the second time.

On reexamination of some of the patients in whom this wide excision of the posterior circumference of the neck of the bladder had been done, it is surprising to see how slight a groove has resulted at the point of excision but still the patients are able to empty their bladders almost completely. At the time of excision of the posterior circumference of the neck of the bladder, the finger should be introduced and forced through the narrow sphincter margin well into the prostatic urethra so that one can grasp firmly the posterior lip of the stretched sphincter prior to excision. After the excision has been completed, the finger should again be introduced into the posterior urethra, because experience has shown that there is often further down in the posterior urethra another band of fibrous tissue which must be thoroughly sectioned if one wishes to get permanent relief. To control bleeding after these wide excisions, it may be necessary to pass a mattress stitch into the mucous membrane of the bladder grasping that of the posterior urethra on either side of the incision. Hemorrhage, strange to say, is at times a very troublesome feature following either intraurethral punch operation, high frequency cauterization, or suprapubic excision; and in those cases, in which excision is made, it may even be necessary to place a packing tightly in the

posterior urethra. Though this method of treatment by suprapubic excision has given me better results than other procedures, I can well recall a number of cases in which the only operative procedure pursued by me was a wide dilatation of the neck of the bladder with my finger which was introduced well up to the second joint and which was followed by complete relief. It also seemed to me that even in the absence of a positive Wassermann, some of these patients were benefitted by the use of small doses of iodide of potassium, and all the cases in which only a dilatation was done, the patients were regularly placed on iodide of potassium with satisfactory results.

SUMMARY.

1. Contracture of the neck of the bladder may start in early childhood and present symptoms that

demand recognition only when the patient has reached manhood.

2. The urethroscopic diagnosis in uncomplicated cases is readily made from the characteristic urethral picture described above.

3. No one method of treatment seems to be regularly curative. Excision of the posterior lip through the whole sphincter into the prostatic tissue with section of any secondary fibrous bands in the prostatic urethra, has given me fairly satisfactory results.

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2. LEWIS, BRANSFORD: *Annals of Surgery*, March, 1915.
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11 EAST FORTY-EIGHTH STREET.

Worthwhile Tests of Kidney Function

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Accurate diagnosis, valuable prognosis, and intelligent management of the different disturbances of the kidney have necessitated a development of tests to determine, more or less accurately, the exact functional condition of the renal structures. To meet this necessity, investigators have proposed many kidney function tests, of various kinds and of differ-

ent values. From all of these tests, internists have found it necessary to select some three or four which give the greatest amount of information. In addition to the usual examinations of the urine for albumin and casts, we have found, after considerable experimentation, that the three most valuable tests for kidney function are: 1. the phenolsulphonphthalein; 2. the two hour test, with the measuring of the intake and output of fluids, salt, and nitrogen; and, 3. chemical analysis of the blood.

The phenolsulphonphthalein test is the easiest to perform and yields considerable information. An output of less than fifty per cent. of this dye in two hours, following the intramuscular injection of ex-

TWO HOUR TEST (CASE I)

(Moseenthal Diet)		Eighth Month	
First Month		Amount	
Sp. gravity	Amount	Sp. gravity	Amount
8-10 a. m.	1.024 110 c.c.	1.021 80 c.c.	
10-12 n.	1.016 75 c.c.	1.019 95 c.c.	
12-2 p. m.	1.027 100 c.c.	1.017 105 c.c.	
2-4 p. m.	1.019 85 c.c.	1.023 50 c.c.	
4-6 p. m.	1.018 60 c.c.	1.021 40 c.c.	
6-8 p. m.	1.017 75 c.c.	1.020 90 c.c.	
8 p. m.-8 a. m.	1.028 375 c.c.	1.022 675 c.c.	
Day urine 505 c.c.		Day urine 460 c.c.	
Night urine 375 c.c.		Night urine 675 c.c.	
Salt	Nitrogen	Salt	Nitrogen
Gms.	Gms.	Gms.	Gms.
Intake	5.2 8.4 1250	6.7 8.9 1075	
Output	3.0 7.9 1025	2.1 8.0 1135	
	2.2 .5 225	4.6 .9 55	

ent values. From all of these tests, internists have found it necessary to select some three or four which give the greatest amount of information. In addition

TWO HOUR TEST (CASE III)

(Moseenthal Diet)		Fifteenth week	
Second week		Amount	
Sp. gravity	Amount	Sp. gravity	Amount
8-10 a. m.	1.022 75 c.c.	1.016 175 c.c.	
10-12 n.	1.019 50 c.c.	1.022 100 c.c.	
12-2 p. m.	1.020 100 c.c.	1.017 125 c.c.	
2-4 p. m.	1.021 75 c.c.	1.016 100 c.c.	
4-6 p. m.	1.020 75 c.c.	1.023 75 c.c.	
6-8 p. m.	1.022 125 c.c.	1.015 150 c.c.	
8 p. m.-8 a. m.	1.022 625 c.c.	1.023 375 c.c.	
Day urine 500 c.c.		Day urine 775 c.c.	
Night urine 625 c.c.		Night urine 375 c.c.	
Salt	Nitrogen	Salt	Nitrogen
Gms.	Gms.	Gms.	Gms.
Intake	7.6 9.2 1520	8.5 11.3 1200	
Output	3.1 3.9 1125	7.9 10. 1100	
	4.5 5.3 395	.6 1.3 100	

to the usual examinations of the urine for albumin and casts, we have found, after considerable experimentation, that the three most valuable tests for kidney function are: 1. the phenolsulphonphthalein; 2. the two hour test, with the measuring of the intake and output of fluids, salt, and nitrogen; and, 3. chemical analysis of the blood.

TWO HOUR TEST (CASE II)

(Moseenthal Diet)		Tenth week	
First week		Amount	
Sp. gravity	Amount	Sp. gravity	Amount
8-10 a. m.	1.013 125 c.c.	1.011 125 c.c.	
10-12 n.	1.011 125 c.c.	1.011 125 c.c.	
12-2 p. m.	1.014 100 c.c.	1.011 125 c.c.	
2-4 p. m.	1.012 75 c.c.	1.011 100 c.c.	
4-6 p. m.	1.011 75 c.c.	1.011 100 c.c.	
6-8 p. m.	1.013 125 c.c.	1.011 150 c.c.	
8 p. m.-8 a. m.	1.014 625 c.c.	1.011 700 c.c.	
Day urine 625 c.c.		Day urine 775 c.c.	
Night urine 625 c.c.		Night urine 700 c.c.	
Salt	Nitrogen	Salt	Nitrogen
Gms.	Gms.	Gms.	Gms.
Intake	9.8 9.0 1310	10.5 8.2 1460	
Output	9.1 5.4 1250	8.8 3.1 1475	
	.7 3.6 60	1.7 5.1 15	

The two hour test, which includes the determination of the amount of intake and output of all fluids, salt, and nitrogen, with the patient upon a diet which is high in salt, and in protein, is valuable. This test has several features which yield considerable information: First, in reference to specific gravity. Nor-

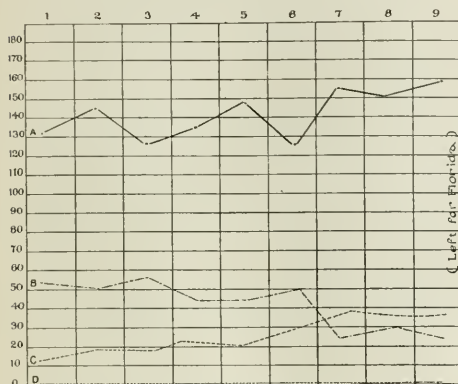


FIG. 1.—Case I, chronic nephritis with edema. Representation of results of kidney function studies for a period of nine months. A, systolic blood pressure; B, percentage output of phenolsulphonphthalein; C, blood urea; D, blood creatinine.

mally, the variation in specific gravity of the different specimens of urine, which are collected at two hour intervals during the day and once during the night, from the highest to the lowest figures, should be nine points or more. In inefficiency of the kidneys, there is an early tendency to fixation of specific gravity. The more severe the nephritis, the more pronounced is the fixation of specific gravity. In chronic nephritis without edema, in diabetes insipi-

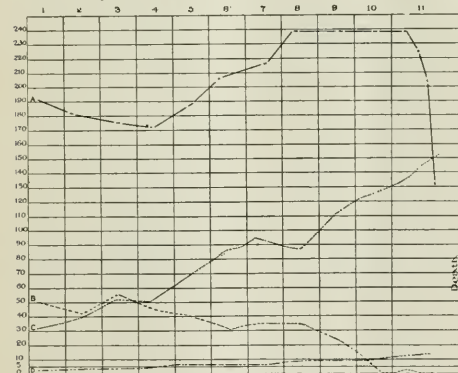


FIG. 2.—Case II, chronic nephritis with high blood pressure. Representation of results of kidney function studies for a period of eleven months preceding death. A, systolic blood pressure; B, phenolsulphonphthalein test; C, blood urea; D, blood creatinine.

du, extreme anemia, cystitis, pyelitis, polycystic kidneys, in the stage of elimination of edema, paralysis of the bladder, urethral stricture, prostatic hypertrophy, etc., there also occurs a fixation of specific gravity at low levels. In acute and chronic nephritis with edema, and in moderate heart failure, there is

a fixation of specific gravity about 1.020. In diabetes mellitus, there is often a fixation of specific gravity at about 1.035. Second, the amount of night urine. A night urine of more than 450 c.c. is suspi-

SOME CHARACTERISTIC BLOOD CHEMICAL FINDINGS.

Rheumatism

	Total N.	Urea N	Uric acid	Creatinine	Sugar
In	Mgms. in	100 c.c.	of blood		Per cent.
Normal	25-30	12-15	1-3	1-2.5	0.08-0.12
Chronic nephritis	30-80	15-50	1-3	1-3	
Uremia nephritis	120-350	80-300	4-15	4-34	0.10-0.20
Eclampsia	Practically no increase.				
Acute Intestinal Obstruction	75-125	45-100			
Bichloride poisoning	30-100	15-75	2-10	1.5-7	
Acute nephritis (some cases)	30-100	20-80	1-12	1-7	
Thermic fever	25-100	15-80	1-15	1-6.5	
Mild diabetes		12-15		1-2.5	0.15-0.30
Severe diabetes					0.30-1.10
Renal glycosuria or renal diabetes					0.08-0.12
Gout			3.5-6		
Rheumatism (uncomplicated)			1-3		
Essential hypertension	25-30	12-15	3+	1-2.5	

cious of renal impairment. However, normal persons may void as much as 750 c.c. during the twelve hour night period. Third, the determination of the amount of the intake and output of nitrogen, sodium chloride, and water, will give much valuable information as to the functional efficiency of the kidney. At the present time, we are using the Mosenthal diet in the carrying out of this test.

Chemical analysis of the blood is very important. The constituents of the blood which are of importance in nephritis are the nonprotein nitrogen, urea

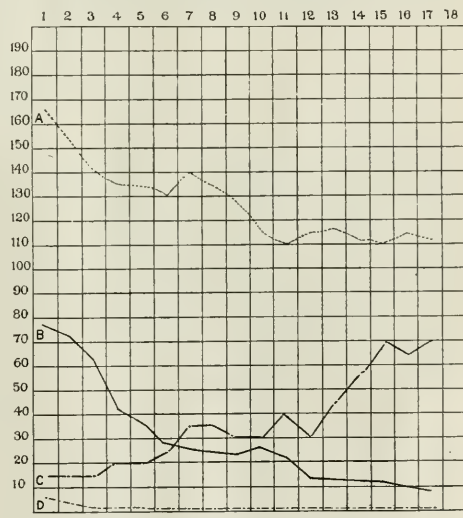


FIG. 3.—Case III, acute nephritis, representing kidney function studies for a period of seventeen weeks with apparently complete recovery. A, systolic blood pressure; B, blood urea; C, phenolsulphonphthalein output; D, blood creatinine.

nitrogen, uric acid, and creatinine. Certain types of nephritis are characterized by retention of these nonprotein nitrogenous substances; and practically all cases of uremia are preceded by an abnormal accumulation of these waste products in the blood. On an accompanying chart are shown some character-

istic blood chemical findings. A total nonprotein nitrogen of one hundred mgms. or a urea nitrogen of sixty mgms. or more to the one hundred c.c. of blood is indicative, in nephritis, of great retention,—and this is an unfavorable prognostic sign. A moderate amount of retention of the nonprotein nitrogenous substances (urea, uric acid, and creatinine) does not demand the total exclusion of proteins from the diet. Except in a few cases of acute nephritis, the finding of five mgms. or more of creatinine in one hundred c.c. of blood, in nephritis, has been followed by death within a few hours to several months,—the longest of which we have knowledge being seven months.

I believe in the use of all three of these tests. I feel sure that these three tests, done almost simultaneously, will yield more real information than will any other test or set of tests which have been used to determine kidney efficiency or inefficiency. My plan of procedure is to begin the two hour test at eight o'clock one morning and finish it at eight o'clock on the second morning. Before the patient eats breakfast on the second morning, blood is withdrawn for analysis. And, about eight-fifteen, the

second morning, the phenolsulphonephthalein is injected intramuscularly, and the patient is given two glasses of water to drink. The urine is collected for two hours and ten minutes for this last test. And then the patient is given breakfast.

The larger charts represent the functional record of three cases of nephritis. Case I represents the type of chronic nephritis characterized by edema. This patient gradually grew worse and finally moved to Florida.

Case II is the typical chronic nephritic without edema and with high blood pressure. The most interesting feature about this patient is that he did not believe that he was sick, for his only symptom was nocturia; and he was busy attending to the affairs of life until his family almost forced him to bed, eight days before death. Six weeks before death, his blood creatinine reached the five milligram mark—which amount warrants an almost hopeless prognosis.

Case III is one of acute nephritis in which the functional tests showed gradual improvement and apparently complete recovery.

DOCTORS' BUILDING.

The Effect of Serial Administration of Silver Arspenamine on the Kidney*

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The short series of experiments presented herein were made with a view to determine the changes, if any, in the kidney following the serial administration of silver arspenamine in the course of treatment of patients for syphilis. For the purposes of the present investigation, the blood of the patients before treatment, after every second treatment and again after the eighth intravenous injection of the new synthetic arsenical drug, was tested for urea, nonprotein nitrogen and creatinine following the technic of Folin and Wu (1). The urine was examined for albumin and casts. The data of the tests are presented in Charts I and II.

Ten patients were treated biweekly and were given eight intravenous injections of solution of the silver arspenamine in doses of 0.2 gm. In Chart I are tabulated in the columns headed *Before treatment*, and *After the eighth injection* the blood urea, nonprotein nitrogen, and creatinine readings. The results of the examination of the urine are presented in the corresponding columns in Chart II. From a study of the charts it is obvious that the patients who have harbored the luetic infection for some time before submitting to treatment have apparently a specific nephritic condition varying in degree and type. However, the specific treatment if it does not improve, certainly does not aggravate the renal con-

dition. In contrast to the conditions cited above, in patients in whom the nephritis is only a phase of the general morbid process of early syphilis, arspenamine apparently brings about a clinical cure. The following two cases are cited herein as examples:

CASE I.—B. G., aged forty-eight, was admitted to the syphilitic clinic in March, 1921, with a follicular type of syphiloderma. Analysis of the blood and urine before treatment revealed the following: urea, 26.1 mgm.; creatinine, 2.1 mgm., and nonprotein nitrogen, 53 mgm. to the 1000 c. c. of blood; a trace of albumin but no casts in the urine. After the eighth injection of silver arspenamine, the blood urea, creatinine and nonprotein nitrogen readings were, respectively, 19.9, 1.67, and 26 mgm. to the 100 c. c. of blood. The urinary findings were normal.

CASE II.—J. H., aged twenty-six, registered at the clinic in February, 1920. Upon examination the following conditions were noted: A maculopapular syphiloderma of two weeks' duration; a trace of albumin and three granular casts to the microscopic field in the urine; the blood urea 17.1 mgm., creatinine 1.8 mgm., and nonprotein nitrogen 37 mgm. to the 100 c. c. of blood. After the eighth intravenous injection of silver arspenamine the blood examination for urea, creatinine and nonprotein nitrogen and the chemical and microscopic examination of the urine were negative.

Anderson (2) in his studies of the effect on the

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CHART I.

Case	Type of lesion	Duration	SILVER ARSPHENAMINE 0.2 GRAM.			TOTAL DOSES 1.6 GRAM.			After eighth injection		
			Before treatment			During course of treatment					
			Urea	Creatinine	Nonprotein nitrogen	Urea	Creatinine	Nonprotein nitrogen	Urea	Creatinine	Nonprotein nitrogen
E. S. Nonulcerative T. B.		12 months	24.8	1.47	52	23.8 22.8 22.4	2.1 2.0 2.0	47 45 43	21.1	1.89	44
H. T. Latent			35.9	1.8	78	25.2 17.2 19.5	1.6 1.6 1.6	53 51 48	16.06	1.6	33
B. G. Follicular syphiloderm		1 month	26.1	2.1	53	21 22.6 24.7	2.0 1.7 1.7	42 38 31	19.9	1.67	26
K. K. Papulosquamous syphiloderm		3 weeks	16.3	2.1	33	15 14.2 14.8	1.9 1.66 1.68	31 32 32	28.5	2.88	30
C. B. Nonulcerative T. B.		3 weeks	27	1.8	46	14.3 16.7 14.4	1.54 1.65 1.81	38 36 32	14.28	9.9	27
J. H. Maculopapular syphiloderm		2 weeks	17.1	1.8	37	11.2 11.2 14	1.66 1.3 1.14	29 31 37	18.1	1.29	31
M. McL. Nonulcerative T. B.		4 months	18.2	1.4	28	14.6 18.2 19.6	1.02 1.51 1.54	30 28 32	14	1.6	29
P. B. Gumma		6 months	21.3	1.9	52	26.2 28 35	2 1.8 2.1	49 50 59	37	2	54
S. W. Condylomata			16.3	1.21	39	18.2 119.9 18.6	1.52 1.64 1.3	28 31 30	17.4	1.42	31
I. S. Papular syphiloderm			17.7	1.05	34	14.4 13 15.6	1.5 1.3 1.06	36 27 32	14.2	1.2	24

kidney, after prolonged administration of arsphenamine and neoarsphenamine concluded that the above mentioned drugs do not injure the kidney. In addition to the estimation of the urea nitrogen, creatinine and nonprotein nitrogen of the blood, Anderson studied the kidney function of syphilitic patients by

have some information in regard to its effect on the kidney.

2. Silver arsphenamine when given intravenously does not cause functional disturbance of the kidney.

3. A nephritic condition, if present in a syphilitic patient being treated with synthetic arsenical com-

CHART II.

Case	Type of lesion	Duration	SILVER ARSPHENAMINE 0.2 GRAM.			TOTAL DOSES 1.6 GRAM.			After eighth injection		
			Before treatment			During course of treatment					
			Specific gravity	Albumin	Casts	Specific gravity	Albumin	Casts	Specific gravity	Albumin	Casts
E. S. Nonulcerative T. B.		12 months	1023	Neg.	Neg.	1024 1019 1020	Neg. Neg. Neg.	Neg. Neg. Neg.	1026	Neg.	Neg.
H. T. Latent		?	1012	Neg.	Neg.	1014 1008 1016	Neg. Neg. Neg.	Neg. Neg. Neg.	1016	Neg.	Neg.
B. G. Papular syphiloderm		1 month	1016	Trace	Neg.	1018 1018 1016	Neg. Neg. Neg.	Neg. Neg. Neg.	1018	Neg.	Neg.
K. K. Papulosquamous syphiloderm		3 weeks	1024	Cloud	Hyalin	1026 1024 1028	Neg. Neg. Trace	Neg. Hyalin Hyalin	1024	Cloud	Hyalin
C. B. Nonulcerative T. B.		3 weeks	1014	Neg.	Neg.	1022 1019 1020	Neg. Neg. Neg.	Neg. Neg. Neg.	1017	Neg.	Neg.
J. H. Maculopapular syphiloderm		2 weeks	1022	Trace	Neg.	1015 1020 1016	Neg. Neg. Neg.	Neg. Neg. Neg.	1019	Neg.	Neg.
M. McL. Nonulcerative T. B.		4 weeks	1023	Neg.	Neg.	1019 1016 1025	Neg. Neg. Neg.	Neg. Neg. Neg.	1021	Neg.	Neg.
P. B. Gumma		6 weeks	1030	Neg.	Neg.	1016 1016 1030	Slight Trace Trace	Neg. Neg. Neg.	1024	Neg.	Neg.
S. W. Condylomata		?	1020	Neg.	Neg.	1016 1017 1015	Neg. Neg. Neg.	Neg. Neg. Neg.	1018	Neg.	Neg.
I. S. Papular syphiloderm		3 days	1010	Neg.	Hyalin	1011 1014 Few	Neg. Neg. Few	Neg. Neg. Neg.	1010	Neg.	Neg.

means of the phenolsulphonephthalein test. He is of the opinion, that we ourselves hold, that if a nephropathy is present in a patient being treated for syphilis, the condition has been acquired prior to treatment.

SUMMARY.

1. With the advent of silver arsphenamine for the treatment of syphilis it was deemed expedient to

pounds in the form of the above mentioned drugs, has been acquired prior to treatment.

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1. HAWK: *Practical Physical Chemistry*, 1918, sixth edition.
2. ANDERSON: *American Journal of the Medical Sciences*, vol. clxii, p. 80, 1921.

Spider Bite of the Glans Penis Simulating an Acute Abdominal Condition

By W. S. WOODY, B. S., M. D.,
Hopewell, Va.

Recently it was my privilege to see and treat a case of spider bite of the glans penis. The symptom complex was, to me, so remarkable that I searched through the available medical literature for information on the matter.

My search having availed me little, on account of the scarcity of material on the subject, I then inquired from several sources of information—including the Surgeon General's office. Here again I was disappointed with the reply that there was little available literature on spider bites and practically none on bites of special parts.

CASE.—The patient—a negro of sixty-two—walked into my office complaining of bilateral pains in the back and throughout the upper abdomen. Being occupied with another patient at the time, I was unable to give the patient my immediate attention. However, his pain became rapidly so severe that it was necessary for me to treat him at once.

Inquiry brought out that he had been perfectly well until about half an hour previously. While seated on a privy hole he felt something touch him on the glans penis. He described the sensation as a slight sting. On looking down he saw the spider, which he said was a small and insignificant looking one.

He paid little attention to the bite and resumed his work. In about fifteen minutes he began to feel pain in his lower abdomen which in a few minutes spread upward to the upper abdomen and lumbar region. This rapidly became worse so that he was obliged to quit work. He then walked to my office, which occupied about ten minutes of his time, and about five minutes later was suffering intense agony.

An examination showed no mark or other indication of the bite on the penis and there was no local pain or tenderness. The entire abdomen, especially the epigastric region, was hard, of a boardlike rigidity and very sensitive to pressure. The temperature was 98°, pulse 62, the patient was drenched in a cold perspiration and the whole picture was one of intense suffering. There had been no nausea, vomiting or diarrhea.

A quarter grain of morphine given hypodermically failed to relieve the pain and it was necessary to repeat this in a short while. This in turn only modified the pain to a sufficient degree to make it bearable and he was still suffering when removed to his home an hour later.

On visiting the patient six hours later I found that he was still suffering, but less intensely. He described the pain now as being a rather severe, dragging sensation in the epigastrium and an ache in the lumbar region. There had developed an intense itching in the soles of the feet. There was still no nausea, vomiting or diarrhea. He had not emptied his bladder since morning. The temperature was

normal, pulse 70. The abdomen was still somewhat rigid throughout and sensitive to pressure. There was no distention. No peristaltic movements could be heard on auscultation. There was still no pain, tenderness or signs of inflammation about the penis.

On a second visit on the morning of the second day the pain was about the same. He had been restless and unable to sleep throughout the night. The temperature was 99°, pulse 80; the itching of the feet had subsided. The bowels had not moved nor had he voided urine. The abdomen was slightly distended; still sensitive to pressure, but the rigidity had largely disappeared. No peristaltic movements could be obtained on auscultation. The bladder was distended above the symphysis pubis. The patient was catheterized. He was ordered to have a soapuds enema and later half an ounce of magnesium sulphate.

An examination of the urine at this time showed a heavy cloud of albumin. A blood count showed 4,300,000 red and 7,200 white cells. Differential count was not made.

On my third visit on the night of the second day, and twelve hours later, the pain was still severe and dragging in the back and upper abdomen and the epigastrium was still sensitive to pressure. The bowels had still not moved. The enema had returned only colored water. The temperature was 99.6°, pulse 86, abdomen somewhat distended and tympanitic. Still no peristaltic movements could be heard. The bladder was again distended above the symphysis. A second catheterization was done. The patient had been drowsy and restless in spells. A high compound enema and a full dose of castor oil to be followed by magnesium sulphate, and this in turn to be followed by a second high enema a few hours later were ordered.

The next visit on the afternoon of the third day found the patient in what might almost be called a typhoid state. He complained of headache and dull pain in the back and abdomen. He was restless and drowsy by spells. The abdomen was much distended and tender. There still were no peristaltic movements to be heard. There had been no results from the purgatives or enema, nor had he voided except in a few dribbling drops; bladder much distended. The temperature was 100.6°, pulse 102, and I noticed for the first time that the sclera showed a slight degree of jaundice. I again catheterized him, ordered an enema with instructions to leave the rectal tube in place for a half an hour.

The same night, about eight hours later I returned with Dr. J. Bolling Jones in consultation. We found on arrival that the patient had passed a large quantity of gas, that he had had a good movement, and that he had voided voluntarily for the first time since being bitten. The improvement in his condition was striking. He was no longer drowsy. The abdomen

was no longer distended and only slightly sensitive to pressure. Auscultation showed that peristaltic movements had returned. He looked much improved and said that he felt a hundred per cent. better. A blood count taken now showed 4,000,000 red cells and 7,000 white cells.

Subsequently his recovery was uneventful with the exception that on the fifth day a mild epididymitis developed. This, however, yielded to local treatment and suspension of the testes. He returned to work at the end of a week and has been well since.

The points in connection with the case that struck me were: The rapidity with which the toxin seemed to travel to the splanchnic area; the marked severity of the primary signs and symptoms which made it closely resemble in some respects an acute surgical abdomen, and the entire absence of local signs at the site of the bite.

My conclusions are that the toxin traveled along the nerve trunks to the splanchnic area resulting in the severe pain, rigidity and temporary paralysis of intestines and bladder. That the secondary typhoid-like symptoms were due rather to the autointoxication, which resulted from the intestinal stasis and urinary retention, than to the action of the toxin itself; and that the mild degree of jaundice was a

socalled hematogenous jaundice resulting from the hemolytic action of the toxin.

My inquiry at the Surgeon General's office furnished the following information:

"The poisonous spiders of North America are divided into two groups. A large, hairy type known as the Tarantulus found in the most southern and southwestern states and in Mexico. A smaller coal black species, the *Latrodectus mactans*, which reaches as much as half an inch in length and usually has two longitudinal dorsal markings in red or yellow. This species is more widely distributed and found inhabiting old stables, outhouses and wood piles. Severe and even fatal poisoning may follow the bite of this insect. The toxin is a powerful hemolytic agent and experiments with it indicate that it is a heart depressant as well."

Contrary to the findings in my case Dr. J. C. DaCosta has the following to say in a short paragraph in his textbook on surgery:

"The bite of large spiders is productive of inflammation, swelling, weakness and even death. The bite of the poisonous spider of New Zealand produces a large white swelling and great prostration. Death may ensue or the victim remain in a depressed, enfeebled state for weeks or even months."

A Report on the Steinach Operation in Senility and Premature Senility

By ABR. L. WOLBARST, M.D.,
New York.

Considerable evidence has accumulated to prove beyond any doubt, if such proof were demanded, that the testes exert a twofold influence on the human economy. One of these influences or functions, spermatogenesis, may be compared to the external secretion of other glands; the products of this function, the sperma, are demonstrable by the microscope. The second function is the elaboration of an internal secretion, known as an activator or hormone, and although it cannot be demonstrated by histological or chemical methods, this hormone undoubtedly furnishes the secondary sex characteristics of the individual. If, therefore, it is true that the endocrine system determines the mental and physical makeup of the individual, it is likewise true that his gonadal characteristics and potentialities are determined by the internal secretion of his testes.

It is commonly agreed that the endocrine properties of the testes are located in the interstitial tissue or Leydig cells, which lie between the generative tubules of the organ. It is when this interstitial tissue undergoes pathological or senile degeneration that the gonadal changes take place which make themselves evident by the appearance of characteristic symptoms of senility in the individual affected.

*Read before the American Urological Association, Atlantic City, N. J., April 26, 1922, and before the New York Physicians' Association, New York, April 27, 1922.

To induce regeneration in these altered tissues or (socalled) glands—in other words, to produce rejuvenation, restitution, or reactivation, or, better still, to retard senility, various methods have been employed, all having for their object the restoration and future maintenance of the normal gonadal balance between spermatogenesis, on the one hand, and activation or testicular hormone production, on the other. This restoration of balance is attempted by resort to artificial means which inhibit the generative tissues (spermatogenesis) and thus bring about a compensatory regeneration of the Leydig cells or interstitial tissues, with the accompanying stimulation of hormone production and the socalled "rejuvenating" effects on the endocrine system.

Three methods stand out prominently in these experimental researches in animals:

1. Transplantation in the senile subject of a gonadal organ from a young animal of the same or related species;

2. Repeated mild exposure of the gonadal organs to the röntgen ray;

3. Ligation and resection of the vas deferens.

The present paper concerns itself only with the last named method, as applied to man, which has been made popular by the widespread interest in the experimental work of Steinach, of Vienna, and those who have followed him.

Briefly, this is the theory upon which the method is based: The immediate sequence of the resection of the vas deferens is a spermastasis, that is, a stasis and absorption of the sperma which are imprisoned within the testes as a result of the closure of their efferent duct. This imprisonment and stasis are succeeded by gradual atrophy of the generative or spermatogenic tissues. With the exception of the basal cells, all the spermatogenic cells participate in this atrophic process; coincidentally, however, there is a decided compensatory proliferation and stimulation of the interstitial cells of Leydig, which constitute the so-called puberty gland of Steinach.

With the passage of time, several months, in fact, the spermatic cells seem to regenerate to a certain degree, the hypertrophy of the Leydig cells diminishes somewhat, and the balance between the two becomes stabilized. The end result is a massive deposit of testicular hormone into the endocrine system, analogous to that which takes place in a successful transplant of a gonadal gland; but it is well to remember the important fact that the increased hormone supply is created entirely within the body of the patient himself and is not taken from a monkey or another human.

A careful study of this theory leads to the conclusion that there must be some other factor in the case than the mere occlusion of the vas and its consequent spermastasis; for it is perfectly obvious that every case of epididymitis prevents the escape of sperma from the testes, yet we do not observe any unusual sexual or general reactions in these cases. Nor is there any record of endocrine changes of an appreciable character in the numerous cases in which vasectomy was performed on habitual criminals, mental defectives and the insane, under legal sanction in a number of the States within the past fourteen or fifteen years.

On the other hand, it has been suggested that the physical wellbeing and restored sexual powers which often follow a successful prostatectomy for senile hypertrophy, are to be considered the result of an unintentional Steinach operation, this being brought about by the accidental injury and closure of the ejaculatory ducts in the course of the removal of the prostate. If this be true, then we must consider such an improvement in the condition of the patient as *prima facie* evidence of an improperly performed operation, for it is the general aim in doing prostatectomy to avoid such injury to the ducts.

However this may be, the fact remains that this sudden spermastasis following vasectomy does produce changes in the endocrine chain in certain cases.

It would seem, giving the operation the benefit of every doubt, that its most effective field is found in cases of endocrine insufficiency, and that such results as follow its performance are caused by the sudden shutting off of the outlet for the sperma, with its immediate effect of a traumatic shock to the entire endocrine apparatus of which the testes are so important a part. If this reasoning is correct, we should expect satisfactory results in these selected cases, and no result whatever in cases with normal endocrine supply.

How the endocrine system as a whole is affected by this operation, we can only surmise, but it is safe to say it would be impossible to produce such a

marked change in one portion of the endocrine chain without affecting to a greater or less degree its entire mechanism. This is made evident by the fact that, in successful cases, all the body functions give evidence of having been reinforced, stimulated and strengthened.

The literature on the subject as applied to man is still very meagre, and there has not been a sufficient lapse of time to enable us to give a proper evaluation to this method, but the search for perpetual youth is as old as life itself, and anything that tends even in the slightest degree to retard senility and increase the period of human activity is worthy of serious study.

The present paper is intended merely as an unbiased report of my clinical experience in eleven cases in which this method was employed. A word as to the operative procedure: Under local anesthesia the vas deferens was exposed, and by careful dissection separated from its fine artery, veins and nerves. Two strong ligatures were applied about three fourths of an inch apart, as close to the epididymis as possible, and the portion of the vas between the ligatures resected. The skin wound was closed and covered with a dry dressing, the scrotum supported by a well fitting suspensory and the patient confined to bed for thirty-six or forty-eight hours.

Eleven patients were operated on, of whom seven were actually senile and five were prematurely senile. It is recognized, of course, that this is not a large experience from which to draw conclusions, but it is evident that the results attained in these cases will have a certain value in our appraisal of the merits of this operation.

The differentiation between the senile and prematurely senile cases was determined by the age of the patient, his general physical condition, and the outstanding physiological disturbance which demanded relief. In the premature cases we were dealing with men varying in age between forty and fifty-two, prematurely gray, generally weak and played out, and presenting the predominating symptom of sexual impotence.

Of these seven cases of actual senility five of the men were in a home for aged men, and were typical of the decrepit and hopeless inmates of such institutions. The operation was undertaken in the hope that it might result in a stimulation of such gonadal endocrines as still remained in their emaciated bodies. They were not informed at any time what effects were sought to be produced, but were persuaded to submit to this painless operation in the belief that it might strengthen them and relieve them of their predominant pains and infirmities.

A detailed review of these cases, taken verbatim from the record charts, is herewith given:

CASE I.—M. B., aged sixty-one. Previous history negative. Complaint, general weakness and cachexia. October 10, 1921. Examination: Heart and lungs, negative; superficial and deep reflexes, slightly decreased; blood pressure, systolic, 220; diastolic, 130; marked senile arcus. On October 17, the operation, right vasectomy, was performed. On November 28, general condition much improved as to color of skin and general nutrition; patient felt livelier and stronger; systolic, 190; diastolic, 120; on April 18, 1922,

the condition was very good; the patient appeared perceptibly younger; felt stronger and livelier; systolic, 180; diastolic, 100. The operation resulted in a decidedly noticeable benefit to the patient.

CASE II.—S. B., aged sixty-five. Physical examination, September 2, 1921: Heart action somewhat irregular, skipped systolic beats every three and four beats; slight myocardial weakness; lungs negative; reflexes normal; osteomyelitis of tibia with a deep scar about five inches long on right leg; blood pressure, systolic, 180; diastolic, 120; mild arcus; generally feeble. On September 5, 1921, a double vasectomy was performed. On November 1, 1921, reexamination: General appearance better, color improved, physically felt a little more vigorous. Systolic, 155; diastolic, 80. April 18, 1922, heart action regular, skipped beat absent, physical condition much better than before operation; systolic, 170; diastolic, 100; pulse, 72. The changes noted, seven months after operation, are a better general physical condition, lowered blood pressure, improved heart beat.

CASE III.—E. K., aged seventy-two. Physical examination, October 12, 1921: General condition was poor and asthenic; defective nasal breathing; moderate arcus senilis; heart action regular and fair; diffuse bronchitis; blood pressure, systolic, 190; diastolic, 130; pulse, 98; knee reflexes diminished. On October 14, 1921, double vasectomy was done. On October 16, complained of headache and anorexia; October 17, felt better and slept well; October 18, complained of feeling very weak; October 25, general condition fair, complexion good, felt stronger; systolic, 120; diastolic, 60; pulse, 60. April 18, 1922, out of town visiting relatives; but nurse and physician stated that his condition had improved perceptibly since operation. Six months after operation, predominating changes are a marked lowering of blood pressure, and generally good condition.

CASE IV.—J. D., aged eighty. October 2, 1921, examination: General condition was fair; arcus well developed, poor reaction of pupils; teeth in poor condition; myocardial weakness of heart; lungs, sibilant râles all over the chest; extremities, cold, cyanosed, varicose veins over lower extremities; reflexes normal; blood pressure, systolic, 180; diastolic, 90. On October 9, 1921, a double vasectomy was done. October 17, had been vomiting his food since the day of operation, and felt very weak; October 19, felt better but very dizzy; systolic, 170; diastolic, 120. In February, 1922, about four months after operation, a large mass was observed in the right hypochondrium and epigastric region; diagnosis, cancer of stomach and adjacent organs; patient died April 4, 1922.

The vomiting and gastric distress after the operation may have been the earliest symptom of the presence of the gastric cancer; possibly the operation stimulated the cancerous growth.

It is thus apparent that four patients have materially benefited by the operation and have maintained this improvement from six to seven months since the operation; in three cases, failure or incomplete data must be recorded.¹

Taking up the cases of premature senility, characterized by sexual impotence:

CASE IA.—S. H., aged fifty-four, widower twenty years. Chief complaint, impotence, duration twelve

years. General health good, but looked like sixty-five or over. Contemplated matrimony. Had been under various forms of treatment without benefit. Cystourethroscopy showed a very large, inflamed verumontanum; and congested posterior urethra. Local applications through the urethroscope and prostatic massage seemed to improve his sexual condition, but the improvement stopped as soon as he suspended treatment. Vasectomy was advised. On October 4, 1921, a double vasectomy was done. On April 18, 1922, the patient reported as follows: Three months ago, he married a young woman; for nine weeks was absolutely impotent, then sexual power began to appear, gradually growing stronger, and the patient had been indulging sexually practically every day, with few intermissions. Erections were not as strong as they were in his youth, but they were satisfactory. Appeared healthy and ruddy. Satisfactory result, six months after operation.

CASE IIA.—B. T., aged forty, married eighteen years, three children. Was impotent for the past three years. Examination pointed to endocrine insufficiency as cause. Vasectomy was advised and accepted. On February 16, 1922, a double vasectomy was done. Had not responded to frequent requests for an interview, but his family physician reported (April 18, 1922) that the man seemed to be satisfied with the results of the operation. He could not give any further details.

CASE IIIA.—B. M., aged forty-seven, married, two children. Complaint, physical weakness and sexual impotence. Treatment had been of no avail. On November 25, 1921, a double vasectomy was performed. February 14, 1922, interviewed (over telephone), patient declared he felt stronger generally, with frequently recurring erections at night. Had not attempted coitus on my advice to refrain for three months after operation. On April 4, 1922, telephoned again, and reported having attempted coitus several times in the past four weeks, with fairly satisfactory results, he believed he was getting stronger gradually. A fairly satisfactory result, five months after operation.

CONCLUSIONS: If any conclusion is to be reached as the result of a study of these cases, one would be justified in saying that the operation has been distinctly advantageous to the patients who have been subjected to it. In the actually senile patients, the most striking result has been the marked decrease in blood pressure, and a feeling of wellbeing that is appreciably noticeable. In these cases the sexual function seems to have become extinct and has not been influenced by the operation. In the prematurely senile cases, there is reason to believe that sexual function has been stimulated materially by operation.

In view of the fact that it is painless, that it involves no risk, and that there is but little loss of time, there seems to be no reason why this operation should not be advised in every case suggestive of endocrine insufficiency. In young men, the unilateral operation is advised as sufficient for the purpose; in cases where procreation no longer is desired, the double operation is to be recommended.

I desire, finally, to express thanks to Dr. Hyman Goldstein for his assistance at the operations.

¹ Cases V, VI, VII and IVa have been omitted for lack of space. A record of these cases will appear in the author's reprints.

Editorial Articles

PROGRESS

It is an axiom of business and professional men, that their occupation or profession cannot stand still. They must make progress or fall behind. This selfevident principle applies to the publication of a progressive medical journal and the publishers of this paper have from the first applied it to the management of the *NEW YORK MEDICAL JOURNAL*.

Let us briefly review its progress, since it was purchased on July 12, 1900, from D. Appleton & Company, book publishers of this city. Dr. Frank P. Foster, then dean of medical editors in this country, continued as its editor in chief, with Dr. Kenneth W. Millican and Dr. Reed B. Granger as assistant editors. It was issued on August 7, 1900, under the ownership of the A. R. Elliott Publishing Company, incorporated under the laws of the State of New York.

On June 8, 1903, the *Philadelphia Medical Journal*, which had been ably edited by Dr. George Gould, was purchased; and on June 20th of that year, the Journal appeared under the caption: *NEW YORK MEDICAL JOURNAL AND PHILADELPHIA MEDICAL JOURNAL, CONSOLIDATED*. Splendid contributions were constantly received from the leading men of Philadelphia, Baltimore, and other medical centres. This purchase largely increased the circulation.

In October, 1905, Messrs. Lea Brothers & Company, medical book publishers of Philadelphia, unsolicited, offered to sell us *The Medical News*. It was purchased; and on January 6, 1906, the Journal appeared under the heading, *NEW YORK MEDICAL JOURNAL, INCORPORATING THE PHILADELPHIA MEDICAL JOURNAL AND THE MEDICAL NEWS*. Dr. Smith Ely Jelliffe was the editor of *The Medical News*, and he joined our staff. The Journal represented a large number of high class contributors and a cleaner, paid-up subscription list it would be hard to find. The consolidation of these three weekly medical journals produced the oldest and the most widely circulated independent medical Journal in the United States. In the meantime we lost four great medical editors; two by death, Dr. Frank P. Foster and Dr. Claude L. Wheeler. Dr. Kenneth W. Millican was called to the staff of the *London Lancet*; and Dr. Charles E. de M. Sajous, whose large practice and medical literary work compelled him to resign, much to our regret. He has always been a friend and guide.

On the third of last month was consummated the purchase of the *Medical Record* from Messrs. William Wood & Company, New York, the well

known medical book publishers. They found it necessary to devote all of their energy to the book publishing business. The *Medical Record* is a splendid publication, of large circulation, which in the fifty-six years of its usefulness has done almost matchless service to the medical profession. The amalgamation of these four journals is a vast broadening of their usefulness to the medical profession and through the medical profession their usefulness to humanity. The union enormously strengthens independent medical journalism. The true professional spirit of Dr. Thomas A. Stedman and the *Medical Record's* championship of therapeutic liberty have long been acknowledged by the publishers of the *NEW YORK MEDICAL JOURNAL*. It was for this reason that the *Medical Record* was purchased so that the two clean cut medical periodicals could join forces in the great work that lies before us, and this work will be vigorously carried on.

With the program that has been laid out, we feel safe in saying that we shall be able to secure and give to the patrons of this JOURNAL the best that can be produced.

A. R. ELLIOTT, *President*,
A. R. Elliott Publishing Company.

DR. GREGORY STRAGNELL.

With the first issue of the *NEW YORK MEDICAL JOURNAL AND MEDICAL RECORD*, the publishers take this occasion to introduce to our readers Dr. Gregory Stragnell as the editor in chief. He has been associated with the *NEW YORK MEDICAL JOURNAL* for over three years, becoming associated with us shortly after his return from service in the Allied armies. He is thoroughly qualified to conduct the JOURNAL in a progressive manner and at a highly scientific level.

Dr. Stragnell came originally from Colorado, having begun his academic studies at the University of Denver. He graduated from the College of Physicians and Surgeons, Columbia University, in 1914, and continued his studies in Paris, Vienna and Zurich, specializing in neurology and psychopathology. At the beginning of the world war he volunteered his services to the Allied armies and saw service on many fronts for a period of over three years. In the course of hostilities he was twice wounded and in 1915 was taken prisoner. He was finally exchanged through Switzerland and again resumed active service. Finally he was put in charge of two large French hospitals, where he served until the close of the war. At present he is one of the

collaborating editors of the *Journal of Nervous and Mental Disease* and a frequent contributor to journals like the *Psychoanalytic Review* on special psychopathological subjects.

During his military service Dr. Stragnell came in personal touch with many of the leading European physicians and surgeons and in this way he is enabled to secure contributions from prominent men in important European medical centres.

Since Dr. Stragnell has been associated with the NEW YORK MEDICAL JOURNAL he has secured the services of over a score of medical editors in special fields of medicine, and these men are cooperating with him to make this journal the leading medical publication of America.

THE INTERSTITIAL CELLS

From time immemorial man has sought to prolong life. Though he has recognized the futility of his fight against Nature's dictum that everything that is born must die, he has persisted doggedly in his attempt to stay young longer than Nature decreed. The fountain of youth has been sought by mere dreamers and by serious minded scientists, and while their methods have differed their purpose has been one. So that it is probably within the truth to say that every generation since the birth of man has had its student of this problem and his remedy. The last generation had its Brown-Séquard; today, we have our Steinach. Methods differ, but aims do not change. We want to stay young; we do not want to die; we have work to do or pleasures to live for, but we want to stay young.

Hence may we account for the universal interest manifested in monkey gland transplantation and in the Steinach method of vasectomy. Both of these methods, at least, have a theoretical basis upon which they will bring analysis and study, for both are based on the theory that we are as old as our endocrines, and if we can put a new supply of fresh endocrine products into our tired bodies, we can attain the end sought and stay young somewhat longer.

Transplantation of gonads cannot become popular, for monkeys are scarce and their gonads do not always stay where they are put. The Steinach method of vasectomy, however, offers the possibility of obtaining what we have long sought, at little or no risk, with slight loss of time, and a fair measure of success.

In this issue of the JOURNAL Wolbarst gives a report of a number of cases in which the patients were operated upon. The article brings up a number of interesting points. Are we face to face with a real rejuvenator? This question suggests itself when we

analyze the reports that are coming to us from various sources. It is plain that this operation has some effect on the endocrine system; but how does it obtain these effects and how long will they last?

It has been suggested that the operation may be of value only in such cases as present a disturbance in the endocrine balance, and that this balance is set right by the traumatic shock to the endocrine chain produced by the operation. This may be so, and this view also may explain the fact that patients suffering from acute and chronic epididymitis do not present visible changes in their endocrine mechanism. It is quite possible that the inflammatory closure of the tubules in the epididymis does not carry with it the required trauma, and hence the mechanism is not affected to any appreciable degree.

We note with peculiar interest the statement that a common sequel to the operation in aged, senile subjects, is the lowering of the blood pressure from twenty to fifty mm. Surely this alone is worth striving for, and if it can be shown on further investigation that these conclusions are correct, we have in the Steinach operation a most valuable addition to the therapeutics of high blood pressure.

Another thought suggested, is that this operation is not necessarily to be used for sexual weakness alone, but rather as a general tonic in which the sexual function, among others, is benefitted. There is reason to believe that this is a far more important feature of the operation than its advocates have been willing to admit, but if it proves to be a general tonic, especially for the aged and the near aged, Steinach will have presented a veritable boon to mankind.

PHYSICIANS NEEDED

Columbia University is one of the most richly endowed and the largest of the universities, and its school of medicine has been one of the most progressive in adopting new laboratory courses and enlarging its curriculum. In his annual report as president of the university Dr. Nicholas Murray Butler presents some important matters in regard to medical education. "The true aim of the medical school," says President Butler, "should be to give instruction in fundamental principles and methods, to bring the students into contact with realities, to train him in habits of observation and inference as to physiological and pathological phenomena, and to give him knowledge of where to look for the additional or specialized information that he may need before his own experience has sufficiently widened and deepened to bring it to him."

President Butler realizes that the purpose of the medical school is primarily to train physicians, and

not scientific investigators. "It would be a sorry day," says Dr. Butler, "for the public health and for the public satisfaction if the physician of large, practical experience, wide human sympathy and keen insight into human nature were to yield his place to the expert with the microscope and the test tube. The scientific aspects of medicine must not be permitted to override its human aspects."

Dr. Butler has put into words a feeling which is prevalent throughout a large portion of the medical profession. The true province of the physician is to heal the sick. Under the rapid development of specialism in medicine this function has been lost sight of in some of the larger medical schools, which train scientific investigators instead of physicians. There is a need for scientific investigators, but the crying need is for men of broad, medical education whose senses and powers of observation, as well as their minds, have been carefully trained; men who depend mainly on their own trained powers of observation and deduction rather than on the differential blood count, the sphygmographic tracing of the electrocardiogram, or the findings of the test tube. All of these aids to diagnosis are of value and should be made use of, but none of them can take the place of the trained and acute observer.

The leaders in medical education have made the mistake of trying to combine the laboratory specialist with the general practitioner, and as a consequence the public has suffered and is suffering from a dearth of doctors.

CONSERVATION OF THE EYES IN INDUSTRY.

Protection of the eyes against disease and industrial accidents, proper illumination, and the correction of refractive errors have been urged by one generation of ophthalmologists after another, all speaking from the professional, or rather the humanitarian viewpoint. The average medical man knows the statements are true, he approves the arguments and the urgency with which they are pressed, but he sees no way in which he can aid in improving matters. Whenever opportunity offered the ophthalmologist has made his plea before school boards, engineers, and employers of labor, and, through these, tangible results have gradually become apparent. It seems hardly possible that scarcely a generation ago an inspector of the New York City Board of Health was censured for stating in an official report that the conditions prevailing in certain schoolhouses were detrimental to the eyes of the children, because such conditions now are recognized as bad and the children have better light and seating.

Many ophthalmologists exercised their inventive abilities and constructed devices to protect the eyes of workmen, and interested individual employers in their use, but such devices were likely to be crude, fitted perhaps for one kind of work, but needing modifications to make them of general benefit. Many of the problems involved could not be solved. Even when employers entered heartily into the plans, opposition was encountered from the workmen who were the beneficiaries. An employer once said to a prominent specialist, who had just taken a piece of steel from within the eye of one of his workmen, "I have equipped my shop with every protective device of which I know. When I am in the shop the men use them, when I am out they discard them, and this is the result." It certainly was discouraging.

How to obtain the right kind of light and the right amount of it without sharp contrasts and glare, was a problem handed over to the engineers. The ophthalmologist has watched with pleasure the improvement in lighting conditions, but the problem has not yet been fully solved.

Now the subject of conservation of the eyes is brought to the notice also of the general public, from the point of view of eliminating waste from industry. In a bulletin issued under the auspices of the Federated American Engineering Societies the protection of the eye from hazards, correction of substandard vision, and illumination are discussed as means of avoiding loss from inefficiency and waste. Though it appears like a coldblooded business proposition, the humanitarian element shows itself when one of the writers queries, "How many valuable eyes a year can the council be instrumental in saving, and what can it contribute to the sum total of human happiness by the corrective measures of removing eyestrain and the fatigue resulting therefrom?"

The bulletin tells us that a number of large industrial plants enforce the use of devices to protect the eyes of their workmen, and that definite codes have been formulated in some industries stipulating all occupations in which goggles, for instance, must be worn. One steel company reports that before it adopted and enforced the rule compelling workmen to wear goggles in 1912, it was not unusual for eyes to be injured or destroyed by flying bits of steel, and that since that date not an eye has been lost in its shops. But such protection does not seem to be commonly afforded throughout the industry. The bulletin says that knowledge regarding the characteristics of adequate protection appears to be limited to a few, mainly to those responsible in the larger organizations, and that it is most important for the smaller groups to realize the necessity of safeguard-

ing the eyes. There are objections to the wearing of goggles which are real, such as the restriction of the field of vision, and much of their value, as well as the comfort of the wearer, depends on the exact fitting of the frames to the face, which is not universal, to say the least.

Doctors and laymen alike have become weary of listening to reasons why refractive errors should be corrected, especially since the pleas of the ophthalmologist have been found useful for advertising purposes by those who wish only to promote sales of glasses, but they may be interested to learn that one company obtained twenty-eight per cent. increased productivity for two years after all its employees had had their eyes examined and glasses furnished when needed. The percentage of employees who did not need glasses was very small. It was found that eight and three tenths per cent. were wearing satisfactory glasses, new glasses were ordered for eighty-three and three tenths per cent., and no glasses were needed by only eight and four tenths per cent.

Be that as it may, we are more than glad to see the subject of conservation of the eye taken up as a matter of industrial waste. Making it a matter of dollars and cents to the employer certainly promises to speed up the progress which has hitherto been made largely from humanitarian motives, and anything which will aid such a speeding up will be welcome.

CARE OF THE BLIND.

The university graduates and undergraduates of Germany who were blinded in the war are taking active steps to reestablish themselves as useful members of the social and economic world according to an article in a recent issue of the *Berliner Tageblatt*. An association has been formed with headquarters at Marburg, which aids sightless students to resume their studies and helps graduates to secure positions, and which is developing a large technical and scientific library for the blind. Among the special classes organized and conducted by this association are those for the study of law, political science, philology, theology and medicine. Among Marburg graduates are teachers, preachers, lawyers, state and municipal employees, political economists, doctors, writers and lecturers. At first the feeling was prevalent that these blinded veterans should be supported by the state all their lives without working, but it was soon evident that this was a poor policy in many ways, especially as it deprived the men themselves of any particular interest in life, so an appeal was made by one of Germany's most noted eye specialists to the industrials to help rehabilitate the blinded soldiers. A large electric con-

cern responded at once and other companies quickly followed their lead, with the result that blind workers are now being advantageously employed in Germany in more than a hundred different kinds of labor. Incidentally, the article states that the number of war blind is steadily increasing.

DANISH INVALIDITY INSURANCE.

Denmark has a new invalidity law which went into effect last October which is compulsory as to all employers but voluntary as to employees except members of recognized sick funds, says the *Monthly Labor Review* for January, 1922. The funds are obtained from premiums paid by insured employees, employers, the state, and various communes, and provide for a pension of eight hundred kroner annually with medical attendance under certain conditions. The pension is reduced in the case of married persons both of whom are eligible for pensions or when the insured person receives aid from other sources. "In case there is a probability that a case of threatened invalidity may be warded off, or a case of existing invalidity terminated or decreased below the limit established by proper medical or surgical care, the insured person must submit to such care, but he is not compelled to undergo any operation which may endanger life or health," according to the *Review*.

The fund is administered by a committee of three persons, one appointed by the minister of finance, one by the minister of the interior, and one the sick fund inspector who is also the manager. A tribunal consisting of a jurist appointed by the king, two physicians, two members of recognized sick funds, and one employer is provided to determine whether or not invalidity exists. Invalidity under the law is defined to mean a reduction of earning power to a third or less.

ZINC OXIDE POISONING.

A troublesome dermatitis that is prevalent among workers who are exposed to zinc oxide dust is described in the *Monthly Labor Review* for January, 1922, as the result of an investigation conducted by Dr. John A. Turner. Of seventeen men examined in the bag room of a zinc oxide manufacturing plant, all but three had had attacks of what they called oxide pox and eight were suffering from the disease at the time. The pox occurs chiefly where there is a rubbing together of two body surfaces and is increased by perspiration. It takes the form of a papular pustular eruption accompanied by intense itching and persists for eight or ten days before drying up. It is followed by slow but marked peeling of the skin. Zinc oxide is a nontoxic substance, but it may act as a conveyor of bacteria. Workmen said that daily bathing prevented any symptoms of the poisoning. Turner recommends the wearing of closely woven working clothes which should be frequently cleansed, and the provision of facilities so that workmen in these plants can bathe at the close of work.

News Items.

State Charities Aid Association Fifty Years Old.—On May 11th the State Charities Aid Association will complete its fiftieth year. The anniversary will be suitably commemorated with a state wide celebration, plans for which have been maturing for several months.

New Mental Clinic.—The forty-first mental clinic established by the State Hospital System has been organized in Troy through the efforts of the Hudson River State Hospital and the Mental Hygiene Committee of the State Charities Aid Association. It is under the direction of Dr. Walter G. Ryon, Superintendent of the Hudson River State Hospital.

Annual Meeting of Women's Medical Society.—The annual meeting of the Women's Medical Society of the State of New York was held in Albany on April 17th. The following officers were elected: President, Dr. Harriet M. Doane; first vice-president, Dr. Clara A. March; second vice-president, Dr. Marie L. Chard; third vice-president, Dr. Emily Dunning Barringer; secretary, Dr. Mary Dunning Rose; treasurer, Dr. Florence A. Sherman.

X Ray Laboratory Permits.—The work incident to the new Section 107, added recently to the Sanitary Code by the Board of Health requiring x ray laboratories to have a permit before they can be operated legally, is being handled by the following committee: Chairman, Dr. H. G. MacAdam, Chief of Division of Institutional Inspection; medical expert, Dr. Leon Theodore LeWald, F.A.C.P.; technical expert, Mr. Montford Morrison, M.S.M.M., E.M.E.E. Applications for permits should be made in writing and addressed to Dr. H. G. MacAdam, 505 Pearl Street, Manhattan.

Officers and Committees of Medical Society of State of New York.—At the annual meeting of the Medical Society of the State of New York held at Albany beginning April 18th, the following officers were elected: President, Dr. Arthur W. Booth, Elmira; vice-president, Dr. Nathan B. Van Etten, New York; speaker of the House of Delegates, Dr. Eliot Harris, New York; vice-speaker, Dr. George M. Fisher, Utica; secretary, Dr. Edward Livingston Hunt, New York; assistant secretary, Dr. Wilbur Ward, New York; treasurer, Dr. Seth M. Miliken, New York; assistant treasurer, Dr. Charles Gordon Heyd, New York. The following committees were appointed: Public health and medical education, Joshua M. Van Cott, Brooklyn; scientific work, Dr. James N. Vander Veer, Albany; medical economics, Henry Lyle Winter, Cornwall; scientific research, Dr. Frederic E. Sondern, New York; prize essays, Dr. Lucien Howe, Buffalo; delegates to the American Medical Association, Dr. E. Eliot Harris, New York; Dr. Edward Livingston Hunt, New York; Dr. Arthur J. Bedell, Albany; Dr. Richard Kevin, Brooklyn; Dr. Grant Medill, Ogdensburg; Dr. Thomas Chalmers, Queens; alternates, Dr. Allan A. Jones, Buffalo; Dr. Alfred F. Prentice, Dr. Albert A. Ferris, Saratoga; Dr. Lytle, Buffalo; Dr. Paul B. Brooks, Albany; Dr. O. E. Jones, Rochester.

Lecture on Splanchnoptosis.—Dr. Anthony Bassler gave a lecture on splanchnoptosis before the Academy of Medicine of Western Ontario at London, Ontario, on April 18th. The lecture was followed by a clinic on the same subject.

Italian Red Cross Sends Relief Mission to Russia.—The Italian Red Cross has chartered a steamer to transport a mission of relief to the famine stricken population on the lower Volga. It is loaded with cereals, condensed milk, medicines, and clothing and is accompanied by doctors and nurses who will organize canteens capable of distributing two million rations daily.

Aid Asked for Russian Scientists and Educational Institutions.—The work of a group of Russian intellectuals, who are in this country for the purpose of interesting Americans in ameliorating the lot of scientists and educators in Russia, has been warmly endorsed by men of prominence, including Dr. William Darrach, dean of the College of Physicians and Surgeons, and Dr. Henry A. Stimson. An appeal is made for food supplies.

Health Week at the Library for Colored People.—At the 135th Street Branch of the New York Public Library, which is patronized chiefly by the colored people of Harlem, international negro health week was celebrated by exhibitions of books on health and medical subjects, of which a large number were circulated, and public health, nursing, hospital care and similar subjects were illustrated by a large stereomograph which displayed its slides in the reading room.

The Right Way in Photography.—This is the title of the latest photographic booklet issued by Burroughs Wellcome & Co. It presents a lucid explanation of the various processes in scientific photography and provides information of value to every photographer, whether expert or beginner. Time tables for development in solutions of various dilutions are given with a list of plates classified according to their speeds of development. The cover is a reproduction of one of the many remarkable illustrations from Mr. H. G. Ponting's book *The Great White South* in which he describes his photographic work with Captain Scott's South Polar expedition.

Use of Photostat in Medical Libraries.—The Library Committee of the College of Physicians of Philadelphia, in its annual report for 1921 just issued, calls attention to the fact that the photostat has been in use in the library of the College of Physicians for five years, and that this medical library is the first to use this device. A description of the photostat is given, with the various uses to which it may be put. It covers to a great extent the question of interlibrary loan service and more or less the local community service. One fact of great importance is that the danger of loss or damage to books in transportation is eliminated, as with the aid of the photostat accurate copies of articles from bound or unbound books and journals may be obtained. The committee hopes that medical libraries throughout the country will give the matter of the photostat, as a part of their equipment, greater consideration.

Homeopathic Medical Society Holds Annual Meeting.—The seventieth annual meeting of the Homeopathic Medical Society of the State of New York was held in New York on Thursday, April 13th. A resolution was passed providing for a conference with the Homeopathic Medical Societies of New England and the Eastern Atlantic States regarding the formation of an Eastern Homeopathic Association, which would bring together all homeopathic physicians of the East. The society also passed a resolution asking Governor Miller to veto the Knight mental defective bill. Next year's meeting will be held in Utica.

Culture Collection of the Society of American Bacteriologists.—The Society of American Bacteriologists has taken over the collection of cultures which for the past ten years has been maintained at the American Museum of Natural History by Professor C. E. A. Winslow, and has deposited it at the Army Medical Museum, where facilities have been arranged for its housing and maintenance. The following committee will be in charge: Major G. R. Callender, curator of the Army Medical Museum; Dr. George W. McCoy, director, Hygienic Laboratory, United States Public Health Service; Major H. J. Nichols, Army Medical School; the president and secretary of the society; Dr. J. M. Sherman, Dairy Division, Bureau of Animal Industry, chairman. These and other members of the society in and near Washington will do volunteer work and the research fellow will do part time work in maintaining the collection. No charge will be made for cultures. In making requests, the classification of the society should be followed as far as possible. Mail should be addressed to the Department of Bacteriology, Army Medical Museum, Seventh and B Streets, S. W., Washington, D. C.

New Hospitals Planned for War Veterans.—The proposed program of the War Veterans' Bureau for additional Government hospital construction in various parts of the country for former service men includes a total of 12,000 beds for mental patients. Location of a hospital of 500 beds in the western part of Massachusetts to receive patients from Vermont, New Hampshire and northern Connecticut towns was recommended to replace the hospital now in use at East Norfolk, Mass., while the use of Fort Porter at Buffalo was suggested. Increase in the capacities of the hospitals at Perryville, Md., and Gulfport, Miss., were recommended, together with the construction of a new institution of 500 beds, to be increased later to 1,000 beds, in district No. 7, comprising Ohio, Indiana and Kentucky. Disapproval of the use of the hospital at Maywood, Ill., was expressed and a new hospital of 1,000 beds, to be increased to 1,500 beds, was urged for district No. 8, comprising Michigan, Illinois and Wisconsin. A new hospital of 500 beds, to be increased to 1,000 beds, was urged for district No. 9, comprising Iowa, Missouri, Kansas and Nebraska, to replace the present institution at Knoxville, Ia. A hospital of 500 beds was recommended for district No. 10, comprising Minnesota, North Dakota, South Dakota and Montana. The bureau is awaiting the action of Congress upon pending legislation to provide \$16,000,000 for hospital construction.

A Research Fellowship in Bacteriology.—It is announced by Dr. Victor C. Vaughan, of the National Research Council, in Washington, that the Society of American Bacteriologists at its recent meeting in Philadelphia, appropriated a fund for the support of a Research Fellowship in pure bacteriology. While excellent work is being carried on in many places, nearly all the problems under investigation have as their aim a practical application and there are, therefore, many gaps in our knowledge of fundamental principles. The society, believing it to be the duty of bacteriologists to fill these lacunae, requires that the line of work to be carried on under its fund must concern a purely scientific and fundamental phase of bacteriology, although a certain latitude of choice will be permitted, conditioned by the previous training and the desires of the research fellow himself.

Applicants for the fellowship must have the degree of B. S., or its equivalent. The successful candidate, through arrangements now being made, will receive academic credit for the work done from a university of recognized standing. One hundred dollars a month will be available for the living expenses of the fellow. Approximately half his time will be devoted to details connected with the society's collection of bacteria, in the Army Medical Museum.

The selection of the research fellow will be in charge of a committee consisting of: Dr. Victor C. Vaughan, National Research Council, chairman; Captain C. S. Butler, Commandant, Naval Medical School; Dr. George W. McCoy, director, Hygienic Laboratory; Dr. John R. Mohler, chief, Bureau of Animal Industry; Mr. L. A. Rogers, president of the Society of American Bacteriologists; Colonel Joseph Siler, Office of the Surgeon General of the Army; Dr. Erwin F. Smith, Bureau of Plant Pathology; Dr. A. Parker Hitchens, Major, Medical Corps, secretary. This committee will have general supervision of the work, approve the problem selected and pass upon the thesis which the fellow will submit as the report of his research.

Applications for and communications concerning the research fellowship should be addressed to the Chairman of the Committee, Dr. Victor C. Vaughan, National Research Council, Washington, D. C.

Died.

ALLEN.—In Jersey City, N. J., on Saturday, April 22nd, Dr. Ulamor Allen, aged sixty-eight years.

BROWN.—In Trenton, N. J., on Sunday, April 23rd, Dr. David P. Brown, aged forty-five years.

CHRISTINE.—In Philadelphia, Pa., on Monday, April 17th, Dr. Gordon M. Christine, aged sixty-five years.

DUNHAM.—In New York, on Saturday, April 15th, Dr. Edward Kellogg Dunham, aged sixty-two years.

GOULD.—In London, England, on Wednesday, April 19th, Sir Alfred Pearce Gould, aged seventy years.

MURPHY.—In Hartford, Conn., on Monday, April 17th, Dr. Walter G. Murphy, aged fifty-two years.

PATTERSON.—In New York, on Tuesday, April 18th, Dr. Frank Newhall Patterson, aged sixty-two years.

SPARKS.—In Brooklyn, N. Y., on Sunday, April 16th, Dr. Agnes Sparks, aged seventy years.

TUCKER.—In Albany, N. Y., on Friday, April 21st, Dr. Willis Gaylord Tucker, aged seventy-two years.

LONDON LETTER.

(From Our Own Correspondent.)

LONDON, February 21, 1922.

Atmospheric Pollution—Health Insurance—The Progress of Cancer Research—The Disguises of Influenza—Birth-rate, Death-rate, and Infant Mortality in England and Wales in 1921—Annual Congress of the Royal Institute of Public Health—Inflammatory Strictures of the Rectum.

There is a unanimity of opinion that a clean atmosphere is healthier than one overcharged with smoke or polluted with noxious vapors. So far, however, as the direct influence of atmospheric pollution on tuberculosis is concerned, we have no definite data on which to base an opinion. While the disease is assuredly more prevalent in manufacturing than in agricultural districts, other influences beside atmospheric conditions enter into the question, and therefore the marked prevalence of the disease cannot with certainty be ascribed to this cause. The situation is somewhat different, however, with respect to other forms of respiratory disease, as evidence drawn from statistics shows that there is an intimate relationship between the number of deaths due to pulmonary maladies generally and the intensity and duration of fogs surcharged with smoke and dirt. However, although evidence is not clear except in the case of tuberculous silicosis, and perhaps of some bronchial affections, that there is any close connection between the occurrence of other respiratory diseases and phthisis, it is obvious that a pure or fairly pure atmosphere is more conducive to good health than a dirty one; consequently, any action taken to effect this end cannot fail to meet with the approval of all interested in health matters.

The report just issued by the Departmental Committee appointed in 1914 to consider the question, and whose work was suspended during the war, is most timely. An interim report was published in 1920 and is included in the present report. In the interim report the committee pointed out the damage caused by smoke and other noxious vapors, and in the report issued recently they state that the conclusions then reached have been strengthened by further evidence. The domestic fireplace in Great Britain is the chief offender as regards air pollution, as it is estimated that approximately two and a half million tons of fuel in the form of dust escape annually into the air from such fireplaces and half a million tons from industrial chimneys; and that in Manchester the increased cost of household washing alone on account of smoke is over £290,000 a year. London has always been regarded as the smoky city of the British Isles, but this is by no means the case. For instance, in Birmingham for the year ending March 31, 1921, over fifty-four tons of solids were on an average deposited monthly to the square mile; in London rather over twenty-five tons, while in Malvern, a small town in Worcestershire, the deposit was only just over six tons. The committee believes that inasmuch as an impure atmosphere is harmful to health and is indicative of wasted fuel and energy, steps should be taken to prevent it. The report points out that action in this direction was taken many years ago, as proclamations were issued in the time of Edward I and Elizabeth forbidding the use of coal in London when parliament was sitting.

The present law as regards the smoke nuisance is stated, and the point is emphasized that the law is adequate if it were enforced. Definite recommendations are made that the Minister of Health should be given power to act wherever any local authority refuses to perform his duty, and that he should have power to transfer to the councils of counties and county boroughs the duty which now lies with local sanitary authorities in enforcing the law. The report shows that smoke abatement is possible of attainment and it is to be hoped that their recommendations will be made law and enforced as soon as possible.

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In the session of parliament opened on February 7, 1922, the Minister of Health, Sir Alfred Mond, introduced a bill increasing the rate of contribution to national health insurance by one halfpenny a week each from employer and employed. An extension of benefit is contemplated as regards dental treatment.

* * *

The announcement made recently that Lord Atholstan and Sir William Veno had each offered large sums to aid cancer research has revived interest in the problem of cancer and especially among laymen. The ordinary individual is astonishingly ignorant as to malignant disease. There are two outstanding views with respect to its causation, the parasitic and the biological. Those who hold the former view believe that malignant tumors are caused by an organism somewhat analogous to that which causes tuberculosis and syphilis. The biological theory of its causation is more complex and to understand the evolution of living organisms must be considered. It proceeds on the assumption that in the first instance, all animals were unicellular and that their main object was to reproduce incessantly. As time went on these single cells massed into groups and took upon themselves special functions. The bodies of the higher animals were built up after this fashion and ultimately that of man, but in the depths of every cell, however highly specialized, there exists the hereditary tendency to divide and to go on dividing. If conditions are unfavorable, for example, in chronic irritation, the cell may revert to type, that is, revert to its reproducing function and continue reproducing without regard to the well-being of the body as a whole. The other tissues of the body, however, put up a strong defense against the cells which have forgotten the teachings of ages, and it should always be borne in mind that the healthy tissues are the allies of the physician and surgeon in the fight against the spread of cancer. The secret of success in the treatment of cancer is early diagnosis.

* * *

The number of cases of influenza during the week just ended has shown a marked decline in all parts of Great Britain, and medical authorities believe that anything like a recrudescence is quite improbable. Recent experience, however, has revealed the fact that influenza masquerades under symptoms of other diseases. In London, for example, a number of persons supposed to be suffering from gastritis were found on examination to be really the victims

of influenza. This simulation is not so peculiar as the similarity of influenza in some of its features to scarlet fever, since gastrointestinal disorders are a frequent accompaniment or symptom of the disease. Influenza usually finds out the weak spots. Its similarity to scarlet fever is more remarkable, especially as several cases in Manchester at first had all the appearance of this affection including a rash. The question was discussed at a recent meeting of the Manchester Medical Society. It is said that in Sheffield many cases reported at the outset to be lumbago were discovered on examination to be influenza.

* * *

Provisional figures of the birth rate, death rate, and infant mortality for England and Wales during the year 1921 have just been published. The birth rate in 1,000 of the total population was 22.4; the death rate in 1,000 of the population, crude rate, was 12.1, and the infant mortality, deaths under one year in 1,000 births, was 83. For the ninety-six great towns, including London, population exceeding 50,000 at the census of 1911, the corresponding figures were 23.5, 12.3, and 87. In 146 smaller towns, population from 20,000 to 50,000 at the census of 1911, the birth rate was 22.7, the death rate 4.3 and the infantile death rate 84. The figures for London only were 22.8, 12.4 and 79 respectively. The death rate for England and Wales is the lowest on record for the country as a whole, and the infant mortality is the lowest on record with the exception of the rate in 1920. The birth rate is the lowest recorded for the whole country except in the war years 1915-1919.

* * *

The annual congress of the Royal Institute of Public Health will be held at Plymouth from May 31st to June 5th, under the presidency of the Earl of Fortesque. In addition to conferences on various matters of importance to public authorities, the work of the congress will be conducted in four sections as follows: Section 1: State medicine and municipal hygiene. Section 2: Naval, military and air medicine. Section 3: Bacteriology and biochemistry. Section 4: Women and public health. The Harben Lectures will be delivered during the meeting by Dr. I. Madsen, director of the State Serum Institute, Copenhagen.

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A meeting of the Medical Society of London, held in London on February 13th, under the presidency of Mr. James Berry, F. R. C. S., a discussion on the subject of inflammatory strictures of the rectum took place. The discussion was opened by Prof. Henri Hartmann, of Paris, who spoke in English. The lecturer, in introducing the subject, said that he had had eighty-six cases of this condition, fifty-nine having been in women, thirty-six in men. He pointed out that inflammatory strictures of the rectum must be fairly rare, as eighty-six cases were all that his long practice had yielded. All statistics on the subject gave a preponderance of cases among women, but a wrong idea of general prevalence among females was due to many of the returns from hospitals specially devoted to women's diseases, including venereal disease. His own numbers taken from a general surgical clinic did not

show a large disproportion, that is, fifty to thirty-six. Syphilis existed in thirty of his cases, or thirty-five per cent. Among other causes were tuberculosis, pederasty and chronic inflammation of the uterus, but he did not think that the lymphatics in the neighborhood played a part, or only in exceptional ways. Often there was gonorrheal infection which affected the genital and rectal regions concurrently. After closely describing these strictures, Professor Hartmann said that antisiphilic treatment had no effect, even in syphilis patients. The more usual treatment was by dilatation but it must be done with gentleness. When this was done each bougie should be left *in situ* a few seconds only. After the proper sized bougie for the case had been reached the treatment should be continued once a week. When proctitis was present the condition was sometimes made worse by dilatation. He had occasionally obtained permanent cures when the lesions were limited to the rectum. It was his former custom to use drainage tubes, but more recently he made a counter opening on the posterior part of the ischio-rectal fossa and used two drainage tubes, with satisfying results. Twice he had performed abdominal peritoneal excision on account of the stricture having reached the inferior half of the pelvic colon. In these he had one cure, the other patient died. His last twenty-five operations had been attended by no fatalities. Of seventeen colostomies he had had fifteen cures. By a careful combination of various methods, great relief could be brought to many of these patients afflicted with inflammatory stricture.

In discussing the lecture Mr. P. Lockhart-Mummery said he had now been performing internal proctectomy for fifteen years and had found it a very satisfactory operation in suitable cases. He thought a number of cases of inflammatory stricture in women were a sequel to a difficult, protracted, even neglected, second stage of labor. He was not inclined to place in the syphilitic category so many cases as the professor did. Most of the cases he regarded as streptococcal. Mr. Herbert Spencer did not agree with Mr. Mummery's remarks as to stricture following difficult labor.

Sir Charles Gordon Watson did not think many of the cases of inflammatory stricture were associated with syphilis. Many of the subjects of this disease, especially women, gave a history of gonorrhea. Sir W. Arbuthnot Lane said that most of the strictures of the rectum had been produced by the surgeon, and they had been difficult to treat. A few, almost all of them in females, were caused by gonorrhea. Strictures which had caused him some trouble were those consequent on ulcerative colitis. Prof. Hartmann in reply said that he had never seen inflammatory stricture as a sequel to difficult labor: indeed most of the cases were in women who had never experienced full term labor. Gonorrhea, he thought, played an important rôle in the production of these strictures. There were two categories of strictures: 1, Those with little ulceration or suppuration, and 2, those with widespread lesions, with vegetations, etc. These last were syphilitic, gonorrheal or tuberculous. Treatment by extirpation was the ideal method, but it could only be done in early cases and when there was healthy mucous membrane above the ulcer.

Book Reviews

THE VENEREAL CLINIC

The Venereal Clinic. The Diagnosis, Treatment, and Prevention of Syphilis and Gonorrhea. A Handbook of Venereal Disease in Relation to the Individual and the Community. By Several Writers. Edited by ERNEST E. T. CLARKSON, M.A. (Cantab.), M.R.C.S., L.R.C.P., Chief Clinical Assistant, Urogenital Department (Males), London Hospital; Late Demonstrator in Human Anatomy in the University of Cambridge. With an Introduction by Sir SQUIRE SPRIGGE, M.D. Illustrated with Colored and Other Plates. London: John Bale, Sons & Danielsson, Ltd., 1922. Pp. 456.

This book is extremely practical and is written by men with an intimate knowledge of the various branches of the subject which they discuss. The treatment of all forms of venereal disease is carefully considered and the part of the book dealing with treatment may be warmly recommended to the medical profession. However, treatment does not vary to any great extent in any country, and the most engrossing portion of the work is that relating to the sociological and administrative aspects of the question and particularly to the prevention of venereal disease, which was written by Dr. Clarkson. This review will therefore be confined to a consideration of the chapter which deals with the prevention of venereal disease.

The author discusses the matter from the following points of view: 1, religious and ethical; 2, educational; 3, medical and physical preventive measures; 4, notification of venereal disease. With regard to the influence that religion exerts in preventing promiscuous sexual intercourse practically it is a particularly weak one. So far as education is concerned attention is drawn to the fact that in Great Britain, although venereal disease is deplorably prevalent, no compulsion is laid upon the students by the examining bodies to undergo a course of instruction as to the diagnosis and treatment of these diseases. Neither is the nurse adequately educated in relation to venereal disease. Both of these omissions the author suggests should be rectified as quickly as possible. In Great Britain great differences of opinions exist with respect to the kind of medical and physical preventive measures which should be employed. The controversy hinges especially around the question of immediate selfdisinfection or quick disinfection. Dr. Clarkson is no partisan and presents the more salient points in dispute in a judicially dispassionate manner, laying down the following points as conducive to forming an opinion.

In the first instance, he warns against the acceptance of statistics at their face value, and goes on to say that if the opponents of immediate selfdisinfection oppose the practice of this method on ethical grounds by reason of its being conducive to immorality, they have neither reason nor right to concern themselves with the question as to whether it is physically efficacious or otherwise. The advocacy of immediate selfdisinfection is in no sense synonymous with the issuing of packets to the community. Those who oppose immediate selfdisinfection on ethical grounds should satisfy themselves as to whether the carrying of a preventive packet or ma-

terials in the pocket spells a greater temptation to the individual than his bearing in his mind the statement that early preventive treatment is stated to be more efficacious than immediate selfdisinfection. It may be laid down as a social axiom that any practice which tends to increase sex promiscuity is evil for the community as being disastrous to the welfare of its constituent social units as represented by the family. And lastly, that neither prophylaxis nor early treatment nor any other medical means of combating venereal disease should be our sole ultimate aim, which should be the reduction of promiscuous sexual intercourse. The author holds the scales fairly evenly between those who uphold immediate selfdisinfection and those who oppose it, with perhaps a slight leaning to the former method. The case for and the case against are argued with great impartiality, and the result is to clear up a good many misconceptions which have existed and to make the whole situation more comprehensible. The book has a discriminating introduction by Sir Squire Sprigge, editor of the *Lancet*, in which he points out that the fact that a complete section of the book is devoted to a consideration of gonorrhea in the female shows that one of the outstanding lessons of recent venereal control has been learned. The illustrations are adequate and good.

PULMONARY TUBERCULOSIS

Pulmonary Tuberculosis. Its Etiology and Treatment. A Record of Twenty-two Years' Observation and Work in Open Air Sanatoria. By DAVID C. MUTHU, M.D., M.R.C.S., L.R.C.P., Associate of King's College, London; Medical Superintendent, Mendip Hills Sanatorium, Wells, Somerset. New York: William Wood & Co., 1922. Pp. viii-381.

A reading of the preface of Dr. Muthu's book leads one to expect a stimulating and valuable exposition of the modern views on tuberculosis. Many will agree that we have lingered long enough at the milestone of bacteriology, that more attention should be paid to the chemical and biological actions within the body, and that we should adjust our angle of vision and study life's processes from the social, economic and psychological aspects. But, unfortunately, Dr. Muthu loses his way as he passes beyond the milestone of bacteriology.

We can follow him when he minimizes the contagiousness of tuberculosis in adults, when he recalls the rarity of conjugal tuberculosis, when he points out that the fall in the rate of tuberculosis was greater before the Koch bacillus was discovered than afterward, when active preventive measures were introduced, and when he deprecates the value of isolation of tuberculosis patients in hospitals and sanatoria as a means of checking the spread of the disease. His explanation of these phenomena, however, based on an uncritical survey of the literature, in which he marshals all of the articles in favor of his thesis, and overlooks the others, is hardly worth discussing at this present date and age. To all intents and purposes he returns to the doctrine of spontaneous generation in proposing the following thesis:

1. That microorganisms arise for the most part from within from the altered condition of the blood. 2. That this altered state of the blood has been brought about by a vicious environment—nutritional, metabolic, and hygienic—causing the saprophytes to take on pathogenic properties which make for disease processes. 3. That in turn these pathogenic organisms, by a more favorable environment, can become saprophytes and harmless, which coincides with a return of health. 4. That Béchamp explained these phenomena by pointing out that both tissues and blood cells on the one hand and microbes on the other are one and the same, only in altered forms, brought on by man's changed environmental conditions. One may at times arrive at correct conclusions from incorrect premises. So it is with Dr. Muthu. The chapters on the treatment and prophylaxis contain much that is good. In addition to the usual sanatorium measures the author employs graduated exercise as a routine measure following a preliminary rest period. Occupation therapy is intelligently prescribed and often combined with physical exercise. The use of continuous inhalations of mixtures of volatile oils, formaldehyde and guaiacol as practised at Mendip Hills Sanatorium, seems less rational.

Probably the best part of the book is the discussion on preventive measures. Social, economic and psychological causes are looked upon as the great breeders of tuberculosis. In addition to the diagnosis and sanatorium treatment of early cases, our whole efforts should be devoted to the improvement of the economic conditions of the masses rather than to the conventional but futile attack on the ubiquitous tubercle bacillus. The book is not to be recommended to the uncritical reader, but for the student it may, as the author hopes, stimulate thought, challenge inquiry, and broaden his horizon in the study of tuberculosis.

THE TUBERCULOSIS PROBLEM

Les Bases Actuelles du Probleme de la Tuberculose. Par FERNAND BEZANCON, Professeur a la Faculté de Médecin; Membre de l'Académie de Médecine; Membre de la Commission permanente de la Tuberculose. Paris: Gauthier-Villars et Cie, Editeurs, 1922. Pp. vi-196.

This book is one of a series on Science and Civilization written for the educated lay public. Prof. Bezancon has written a very readable and comprehensive book on tuberculosis, which presents the subject in a clear and scientific manner, in sharp contrast to so many of the popular scientific publications. He discusses the evolution of our knowledge of tuberculosis, the bacteriology, the problems of contagion and infection, the important manifestations of tuberculosis in the adult, as well as diagnosis, therapeutics and prophylaxis. At times the discussion becomes a little too technical for the nonmedical reader. Some may question the emphasis which he places on contagion as the chief cause for familial tuberculosis and the importance which he places on hospitals and sanatoria as the means of isolating the tuberculous and thus limiting the spread of the disease.

The book can be recommended to physicians, as well as to the laity, as a brief and comprehensive summary of our present knowledge of tuberculosis.

TUMORS.

Neoplastic Diseases. A Treatise on Tumors. By JAMES EWING, M.D., Sc.D., Professor of Pathology at Cornell University Medical College. Second Edition, Revised and Enlarged. With Five Hundred and Fourteen Illustrations. Philadelphia and London: W. B. Saunders Company, 1922. Pp. 1054.

The enthusiastic reception with which the first edition of this fine work was greeted by the medical profession undoubtedly again will be accorded to this second and revised edition. The author has made an enviable reputation as an authority on tumors and needs no commendation. He has produced a work which is perhaps the most practical and useful that has yet appeared on this subject.

His treatment of tumors in general is well known to readers of the literature on pathology. In this work he has endeavored, with considerable success, to analyze the numerous etiological factors which meet in such diverse fashions in the inception of tumors, to emphasize the general dependence of the clinical course upon the histological structure, to trace the histogenesis to the last degree, impressing at the same time its importance when known, and enumerating and contrasting the more striking clinical features which are often highly characteristic of different tumors.

The chapters on bone tumors and on neurofibromatosis have been largely rewritten, and it is evident that few portions of the work have remained unchanged. Thirty-three new illustrations have been added, making a total of five hundred and fourteen. The result of these labors is a monumental work, characteristic of the ability and reputation of the author in his chosen field.

X RAY TREATMENT OF CARCINOMA.

Zur Therapie des Karzinoms mit Röntgenstrahlen. Vorlesungen über die physikalischen Grundlagen der Tiefentherapie. Von Prof. Dr. FR. DESSAUER, Direktor des Instituts für Physikalische Grundlagen der Medizin an der Universität Frankfurt a.M. Mit 30 Textfiguren. Dresden und Leipzig: Verlag von Theodor Steinkopff, 1922. Pp. 70.

A monograph in lecture form outlining the physical conditions involved in deep x ray therapy. This is attempted in four short lectures, and the author manages to combine conciseness with simplicity. Here is unfolded the precision with which the physicist has attempted to apply his specialty to a biological problem. To one interested in the subject from the point of view of practice little encouragement is to be derived from a reading of these lectures. The physical conditions surrounding each attempted treatment must be individually computed and can be formulated only by one most thoroughly trained in x ray physics. To the medical profession in America here is yet another instance of German science showing the way. The professor eloquently and hopefully calls attention to the importance of physics to medicine pointing to his unique chair in the University of Frankfurt a.M. as evidence thereof. Following the lectures is an appendix in which is abstracted all the author's published papers from 1905 to 1921 dealing with problems of deep x ray therapy. Have we here a publication serving as a prospectus inviting all to come to Germany and learn?

CARDIOVASCULAR DISEASES.

The Clinical Study of the Early Symptoms and Treatment of Circulatory Disease in General Practice. By R. M. WILSON, M.B., Ch.B., Late Assistant to Sir James Mackenzie Under Medical Research Committee; Late Cardiologist, War Office Trench Fever Committee; Consulting Physician, Ministry of Pensions. With a Foreword by Sir JAMES MACKENZIE, M.D., F.R.S., F.R.C.P. The Oxford Medical Publications. London: Henry Frowde and Hodder & Stoughton, 1921. Pp. xvi-245.

It is a truism that the general practitioner knows little of the more obscure diseases of the heart. It is also a truism that Sir James Mackenzie has revolutionized the study of cardiology, not only by suggesting and bringing out methods to diagnose with greater accuracy many of the heart affections but by pointing out that in order to treat a case scientifically and intelligently the relations of the symptoms to the disease must be understood. Indeed, in heart disorders, he pursues the same course as in the treatment of other diseases, namely, to prevent their development. Certain gross signs are palpable to the comparatively untrained medical man, when the disease has advanced, but the object of successful treatment is to be able to detect early symptoms and prevent the malady from reaching a serious stage.

The book under review is by Sir James Mackenzie's chief disciple, who may not inaptly be termed his Huxley, as he propagates the views of his teacher in much the same way as Huxley propagated and explained the views of Darwin. Dr. Wilson commences the introduction to his book by stating a fact which in these days is often overlooked, that what is true of the laboratory is not necessarily true of the sickroom. Clinical methods are of as much importance as laboratory investigations, perhaps more so, and to obtain the best results, one method must act in cooperation with or as an adjunct to the others and not be expected to solve the problem by itself. A living body, unlike an experiment, always reacts to its surroundings, and so escapes from being overwhelmed by them. This truth forms the basic argument of the book and is elaborated in an instructive and interesting manner.

On account of the limitations of space only some of the most pertinent points will be dealt with. The first chapter discusses the nature of exhaustion, in which the author states his agreement with Mackenzie that exhaustion is not a symptom of cardiac weakness but is a vasomotor phenomenon, and that breathlessness is a cardiac phenomenon. Exhaustion may and not infrequently does proceed from a mechanical cause, in women, for instance, not infrequently from a perineal tear. Again a marriage without love may cause a psychic inhibition. The mechanism of exhaustion is described as well as the determining causes of exhaustion and then the diagnostic significance of the condition is dwelt on at length. The chapter on the pulse rate as a symptom is especially worthy of close attention and the following conclusions are arrived at, that in attempting to derive information from the pulse, other circumstances must be carefully weighed and possible errors excluded. The exhausted patient with a slow pulse must be carefully examined before the slow pulse can be accepted as pointing definitely to a

permanent visceral disturbance. Tachycardias, too, must be read in the light of temperature and blood pressure and general activity. In the active, they point almost unmistakably to the presence of a toxic agent. The slow pulse of typhoid belongs in a class by itself but there is no space here to describe Dr. Wilson's views thereon.

A chapter is devoted to breathlessness and another to cyanosis, the latter being of particular interest. Another chapter dealing with the recognition of the types of infection is certainly one of the most important chapters of the book. Other chapters deal with The Relationship of Pulse and Temperature; The Symptoms of the Patient's Sensations; The Significance of Hyperalgesia; The Sensation of Cardiac Pain; Headache as a Sensation; Observations on Blood Pressure; The Infections Which Attack the Heart; The Earliest Symptoms of Heart Failure and finally Lines of Treatment Founded on Early Signs and Symptoms.

The whole work is based on original views as to the cause of heart affections and disability. The author has attempted to differentiate between the effects of disease and the reactions of the body thereto. No one will deny, of course, that knowledge of the diseases and disorders of the heart is very imperfect. There is much to be done in this field and Sir James Mackenzie has led the way to a new conception of disease and the mode of preventing it. Dr. Wilson's book may be commended to the notice of American medical readers. It is also an excellent piece of book making and is adequately illustrated.

PSYCHOLOGY OF PREADOLESCENCE.

The Soul of a Child. By EDWIN BJÖRKMAN. New York: Alfred A. Knopf, 1922. Pp. 322.

Case histories are always absorbing. In Mr. Björkman's book we have a great deal more than an authentic case history. Physicians will recognize at once the type of patient produced by the environment so inimitably described by the author. The story starts with Keith Wellander's earliest recollections. All the petty details of a dissatisfied household, with the evasions, half hints, and neurotic secrecy, spur him on to the waspish precocity found so often in the only child. From the family circle that will not satisfy his questions, Keith turns more and more within himself and the stages of neurotic introversion are subtly indicated.

The mother is hysterical, and is swamped by periodical waves of depression. The father is occupied with some unknown business, that Keith discovers to be of mental nature, although the family tries to cast a glamor over it. His father's fulfillment of Keith's imago vacillates interestingly. He finds he is not so all powerful as Keith had thought him, but how well he carries out his duties, and how just and upright he is in regard to his employees. The father is ludicrously subservient to his old mother, yet how fine he is to pay her such courtesy. The father's brother is arrested for embezzlement, yet how nobly he recovers his selfcontrol on Keith's account. The relation of Keith to the mother is more typical. He is tied to her apron strings for many years, yet with a growing resentment. He

never breaks away entirely. He is swamped by a sickening pity for her, an inertia that forbids the break. The recollection of his grandmother's power over his father makes his clinging natural.

Like *A Young Girl's Diary* this book brings an important contribution to preadolescent thought life. This boy also has to explore the recesses of sex taboo unaided. The perversity and misinformation accessible to his group of playmates are approached in a spirit of psychic purity that is rapidly tarnished by adult bungling. The so frequent clouding of ambition and failure in school work is inevitable here as well, during the year or two of intense conflict at twelve or therabouts.

In the boyhood history of this lad, everything that is pernicious in child training has taken place. For want of space the boy sleeps in his parents' room until he is fully grown. The parents seem to have considered him deaf, dumb and blind all through his life, except when a spark of interest would come to the surface. The spark would be fanned destructively to smouldering inversion of the parents' unwillingness to face their responsibilities toward him.

It will be interesting to see how many parent readers of this book will remain blind to its bearing on immediate problems. Yet no matter what the advantages of each group, there is no lesson that does not apply very closely. May it open the eyes of the reading public, as it has done in the medical world, to the shortcomings of parents, and the effect upon innocent victims who have no choice but to develop into neurotics.

RECENT CONTRIBUTIONS TO ANTHROPOLOGICAL LITERATURE

Source Book in Anthropology. By A. L. KROEBER and T. T. WATERMAN. Berkeley: University of California Press, 1920. Pp. 565.

On the Trail of the Pigmies. An Anthropological Exploration under the Cooperation of the American Museum of Natural History and American Universities. By Dr. LEONARD JOHN VANDEN BERGH, J.D., LL.B. Photographic work under the guidance of Dr. GEORGE BURBANK SHATTUCK, Formerly Professor of Geology at Johns Hopkins and Vassar Universities. Foreword by ROBERT H. LOWES, Associate Curator, Department of Anthropology, American Museum of Natural History and Lecturer in Anthropology, Columbia University. New York: James A. McCann Company, 1921. Pp. xiv+264.

Psychology and Folklore. By R. R. MARETT, M.A., D.Sc., Fellow and Tutor of Exeter College, Oxford; University Reader in Social Anthropology. New York: The Macmillan Company, 1920. Pp. ix+275.

It is increasingly evident that some understanding of anthropology is not only desirable, but also essential to the physician if he is to keep up with the trend of everyday progress. Evolution, exogamy, cultural types are all terms in such constant use that the greater our familiarity with them and their ramifications the more interest we find in life.

A little book that combines the most pertinent selections of anthropological literature in a form easily read and of vast use for reference to the scientist, is the *Source Book in Anthropology* compiled by A. L. Kroeber and T. T. Waterman. Evolution, heredity and race are studied with the aid of

the best authorities, then the civilizations and the criteria of stages of civilization surveyed. Herodotus, Charles Darwin, Huxley, Hrdlička, Tylor, Galton, Boas, Karl Pearson, are a few of the noted workers from whose writings selections have been made.

Further illustration of many of the theories of primitive culture is offered in Dr. Vanden Bergh's spirited book, *On the Trail of the Pigmies*. For ten years the author was a missionary in Africa and he studied this rich anthropological field with the zest of a born scientist. Observations on the primitive life and medical beliefs, rites such as circumcision ceremonies and material concerning many interesting savage customs met with universally among primitives and not infrequently in the mentally unbalanced, are recorded by means of moving pictures. Numerous exhibitions of these pictures have been given in the last year. The permanent record that he has obtained is unique. The little known character of the pigmy and of primitive man in general in Africa is illuminated by this intrepid explorer.

Finally we come to a noteworthy series of essays [*Psychology and Folklore*, Marett], publications of speeches and lectures by a distinguished anthropologist. Folklore and anthropology are studied from the viewpoint of psychology. We do not find here the mass of data, comparative and otherwise, that makes a ponderous treatise out of anthropological research. But with a vast background of such material Dr. Marett presents such fundamental theses as the nature of folklore, the relation between war and savagery, the interpretation of survivals, the primitive medicine man, anthropology and university education.

A number of these essays were delivered as presidential addresses before the Folklore Society in England during the war. The attitude of the broad-minded scientist who seeks causes, not on a petty, personal scale, but with a profound knowledge of human nature from its most primitive to its most advanced representatives is here strikingly illustrated.

A brief argument precedes each essay, a point of departure, as it were, for the author's vast treasure house of information. We delve with him into a region full of life and color. All in all, a collection of writings as fundamental as they are fascinating, worthy of adorning the book shelf of any thinker.

BEGGARS' GOLD.

Beggars' Gold. By ERNEST POOLE. New York: The Macmillan Company, 1921. Pp. 234.

"Beggars sitting on bags of gold" is what we humans, and especially our children, all are, according to Ernest Poole in this latest story of present day American life. In other words, the unlimited moral and spiritual possibilities of human nature, if they can only be released, have the power to change us from children and weaklings to moral giants.

Peter Wells, the hero of *Beggars' Gold*, came from a little New England village to New York city to devote his life to what he believed to be his mission—teaching in the public schools. Underneath his crude, awkward exterior burned unquenquably a fierce love of beauty and romance, which, through his

having heard in childhood a talk by a missionary, had concentrated itself upon China as the most interesting and thrilling of all lands. So when Moon Chao, a tiny Chinese orphan, and Katherine Blake, a teacher and the daughter of an engineer who had devoted all his energies to the betterment of China, came at the same time into Peter's life, his passion to live and work in China was augmented by a like zeal on the part of these two. But, although Peter and Kate were married and adopted temporarily Moon Chao, this goal of the East was destined to recede distantly and at times almost to be obliterated by the struggle of the young couple against the exigencies of professional obstacles, illness, the bringing up of their own child, and finally the hard times of the Great War. To cap the climax, Peter, in his passion for truth and sincerity, was persuaded to make an address at a meeting of radicals, which was interpreted as seditious by a few unfriendly co-workers, who were able finally to bring about his humiliation and expulsion. Finally Peter and Kate, their natures developed and enriched by the long struggle, can realize their golden dream.

For some reason this picture of present day American life by Mr. Poole lacks the vividness and convincing quality of most of his former works. Perhaps this is in part due to the fact that the characterizations seem rather vaguely and indefinitely drawn. We have the feeling that the author is depicting and developing his personages to substantiate a theory, to point a moral, rather than letting them live out their own lives. Such an effect is probably inevitable in a book in which we have the consciousness that the writer sets out so definitely to make a point as does Poole in *Beggars' Gold*. Yet, in spite of all this effort, the reader is rather vague as to just what this point is. Why, when Peter and Kate seem to realize so clearly that their own country, America, so sorely needs the help and support of sincere, broadminded and loyal spirits in a time of moral dearth and depression, do they rush off to China to satisfy their desire for service? Surely neither the attainment of a long cherished ideal, nor the humiliation of Peter's expulsion from school by a few narrowminded fanatics, is sufficient cause for such a desertion in time of need by two who are represented as desiring above all else to devote their lives to the highest form of service.

The book does have a value, however, in its support of the preservation of broadmindedness and idealism in times of national crisis, and its emphasis of the fact that the chief avenues for social and national betterment are education and the schools.

PRIZE STORIES.

O. Henry Memorial Award. Prize Stories of 1921. Chosen by THE SOCIETY OF ARTS AND SCIENCES. Garden City: Doubleday, Page & Co., 1922. Pp. 312.

Although the sixteen stories chosen by the society for publication this year cover a wide range of subject and show great variety of treatment, not one is exceptional as a literary product. Blanche Colton Williams, in her introduction to the volume, states that she feels that the low standard of present day magazine fiction may be due in part at least to the harmful editorial policies of encouraging padding, or the reverse, of so-called editorial surgery.

SPIRIT OF THE EAST.

The Hidden Force. A Story of Modern Java. By LOUIS COUPERUS. Translated by ALEXANDER TEIXEIRA DE MATOS. New York: Dodd, Mead & Company, 1921. Pp. 302.

The sinister thread of emotion weaves as a shuttle back and forth to link the Dutch colonist to conquered Java. In the welding of the native lives by white marriages, the gradual violation of tradition and the final rule by force imposed upon the inhabitants, the story of many foreign occupations is told. A picture of Dutch life in Java, forceful and in some respects as embittered as Claude Farrère's descriptions of Indo China, is given here with tropical witchery and mystery to lend it spice.

A GOOD MYSTERY STORY.

Within Four Walls. By EDITH BAULSIR. New York: The Century Company, 1921. Pp. vi-325.

A first class detective story of the conventional type, the mystery of which is skillfully developed without a chance of the reader guessing it till the very end. It contains a "cry in the night," a villainous father and an adorable daughter, a murder, a bungling detective, a long suffering suspect whose noble character is finally revealed to the world, and a very charming and clever young hero in love, of course with the adorable daughter. But to tell more would give away the plot. The story is excellent entertainment for a rainy evening at home.

Medicoliterary Notes.

Havelock Ellis has in *The Forum* for April an article entitled *The Measurement of Civilization*, in which are discussed the methods of the Italian sociologist and statistician, Alfred Niceforo, author of *Les indices numeriques de la civilisation et du progrès*. The writer also quotes Professor William McDougall's conception of civilization as shown in his *Lowell's Lectures*, *Is America Safe for Democracy?*

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"There are three motives for human action: 1, the feeling that our intercourse with other human beings evokes; 2, imitation, influence, hypnosis; 3, rational thought. Of a million acts caused by the first two groups of motives, there will be not more than one due to rational thought. . . . The same truth applies to groups of men, that is, to social actions." (*Tolstoi's Diary*, 1903.)

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An anonymous author, reputed to belong to high circles in Germany, has just published a sensational book called *Germany's Tragedy*. One chapter of this is a character study of William II in which the writer represents the former Emperor as always having shown many unmistakable signs of serious mental disease. This chapter is reprinted in part in *The Living Age* for April.

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Maria Chapdelaine, by Louis Hémon, and *Memoirs of a Midget*, by Walter de la Mare, are two excellent recent works of fiction. *Maria Chapdelaine* is an exquisitely told, wholesome story of the Canadian

North woods, coming as a real rest and relief after a superfluity of "problem stuff." It is available in the French text for those who prefer to read it in the original. Walter de la Mare, author of *Memoirs of a Midget*, is already well known as a British poet. This recent novel of his is not only an extraordinarily artistic and original piece of fiction writing, but also a remarkable study in psychology. So convincing is his presentation of "Miss Midget's" inner life that the enthralled reader is constantly asking himself if she were not a "really real" person.

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The English *Cornhill Magazine* for January contains a series of delightful sketches called Reminiscences of the Yorkshire Moorland, by a Country Doctor. The writer introduces himself as follows: "It has been said that the parson sees a man at his best, that the lawyer sees him at his worst, and that only the doctor sees him as he really is. If that is the truth, as I think it is, I have only myself to thank if I cannot give a true picture of the life and character of the Yorkshire Moorlander."

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Traité de Métapsychique is the title of a volume of more than eight hundred pages recently submitted by its author, Professor Charles Richet, to the Paris Academy of Sciences. This is the first time in the history of the Academy that the "occult sciences" have been officially discussed. The book is dedicated to Sir William Crookes and Frederick Myers, the latter one of the founders of the Society for Psychical Research.

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Sir Arthur Pearson, the blind philanthropist, whose recent death has been mourned by the whole of England, is the subject of an interesting article in *The Cornhill Magazine* for February. Pearson, who was afflicted with blindness in the midst of a successful career, devoted the rest of his life to helping the blind in less fortunate circumstances than himself. The article describes his work at St. Dunstan's and is reprinted in *The Living Age* for March 25th.

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The Scientific Monthly for February contains two articles of interest on public health problems. One is by William A. McCall and Bronson L. Huestis, both of Columbia University, and is entitled Mental and Physical Effects of Fresh Air. Emphasis is laid upon the subject of open air schools. The writers consider their value as still an open question.

Dr. J. Howard Beard, of the University of Illinois, is the writer of the second article, The Progress of Public Health Work. The development of the public health idea and its application is traced from the Hebrews, who originated it and made hygiene a part of religion, through the Middle Ages, when the Crusades and other wars led to worldwide epidemics. At this time syphilis appeared, and bubonic plague, ergotism, scurvy, influenza and leprosy destroyed millions. The writer concludes with a discussion of modern theories and methods of sanitation—insulation, group practice, maternal and child welfare work, rural and industrial hygiene, and health instruction in schools.

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LE BACTERIOPHAGE, SON ROLE DANS L'IMMUNITE. Monographies de L'Institut Pasteur. F. D'HERELLE. Paris: Masson et Cie, 1921. Pp. iii-227.

TRAVAUX NEUROLOGIQUES DE GUERRE. Par GEORGES GUILLAIN et J. A. BARRE. Preface du Professeur PIERRE MARIE. Paris: Masson et Cie, 1920. Pp. xii-463.

THE PSYCHIC LIFE OF INSECTS. By E. L. BOUVIER. Translated by L. O. HOWARD, M.D., Ph.D. Illustrated. New York: The Century Company, 1922. Pp. xvi-377.

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Practical Therapeutics

GONORRHEAL ARTHRITIS TREATED WITH NONSPECIFIC VACCINES.

BY LEO L. MICHEL, M. D.,
New York.

In an article on Infectious Arthritis of Urogenital Focal Origin, published in 1919 (1), my conclusions were: "Infectious arthritis of urogenital origin can result from any bacteria in the urogenital tract. Gonorrheal arthritis may result from anterior as well as posterior urethral infections. The polyarticular variety of arthritis is more frequent than monarticular arthritis. The larger joints are more frequently involved than the smaller ones in gonorrheal arthritis. Nonspecific proteins introduced intravenously are specific for acute infectious arthritis."

Experience since acquired (2) has led me to reintroduce the subject. In my capacity of attending urologist to the Hospital for Joint Diseases, I have the opportunity of observing cases of arthritis in which the focus of infection is the genitourinary tract. I may mention here that, as far as I know, this institution is the only one dedicated to diseases of the joints which maintains an active urological department.

Since the paper first mentioned (1) appeared many cases of gonorrheal arthritis have been under my care both in hospital and private practice. Treatment with the nonspecific vaccines—in my series, the paratyphoid—has been almost a routine procedure. In the majority of cases the statement which closes the conclusions quoted above has been sustained, but in a few the results have not been such as to warrant so broad a statement. In order to classify the types of cases I will cite a few case reports.

CASE I.—Acute arthritis (recent). The patient was a male, twenty-five years of age. He had had but one gonorrheal infection and that only of one week's duration, following an incubation period of three days. Though a primary case, arthritis developed two days after the onset of the urethritis. Previously to coming under my care (referred by Dr. Peter Friedman), he had been treated for about a week with anterior urethral injections. He presented clear urines, both first and second glass, and no involvement of posterior urethra. He did have an acute arthritis of the elbow, knee and hand. He was given the paratyphoid injection intravenously. This was followed by a very severe chill. All the pains disappeared after about twenty-four hours, but returned two days later in the elbow. The second injection was given five days after the first, and as indicated a third injection was given at another interval of five days. The arthritis disappeared completely, that of the knee and hand after the first injection, and did not return. The first injection consisted of one hundred million paratyphoid, and the third was five hundred million.

CASE II.—Acute arthritis (subacute). An adult male had had a urethral infection for six months.

During the second week of the infection an arthritis of both knees developed with severe pain and swelling. He was treated by his family physician for acute rheumatic fever. After six weeks he improved somewhat, but had a recrudescence of the urethral trouble. Two weeks later he was again suffering from acute arthritis of the knees, so severe that he was compelled to come to the hospital. Examination of the urethral discharge revealed the gonococcus. There was posterior involvement, the prostate and seminal vesicles being inflamed and gonococci were found in the secretion. The patient was given a paratyphoid injection intravenously, and felt better within twelve hours. The inflammation of the knees subsided, and the swelling was much reduced. Repetition of the paratyphoid injection intravenously brought the arthritis under control. Incidentally, after these injections we were unable to find the gonococci in the smears from the urethra.

CASE III.—Arthritis (chronic). Young adult male had had a urethral infection about three years ago. A year following the onset of the acute urethritis arthritis developed involving both feet. He also had a spur on the right heel and the metatarsal joints as well as the ankle of that foot were seriously involved. He was unable to move about or attend to any work and was a veritable cripple. He had been treated by orthopedists but had never had any treatment for foci of infection in the urogenital tract. The patient was given appropriate treatment for the focus of infection, and paratyphoid injections intravenously. A week after the treatment was begun he threw away his cane and was convinced that he was going to get better because he was able to get about a little. After the third injection of the paratyphoid, no gonococci could be found in the smears. He had had continuous local treatment as well as the vaccines. There was still some pus in the vesicles and prostate, and continued appropriate local treatment had to be carried on to restore these parts to normal. The patient was able to attend to his business, with restored function of the joints.

CASE IV.—Gonorrheal spine. Young adult male had had an acute urethral infection, and developed spinal trouble after three weeks. The urethral discharge contained gonococci, yet the prostate was small and firm. Because of the pain, the patient was put in a cast, and the immobilization gave a great deal of relief, and a sense of ease and comfort. In addition, he was given proper treatment for the gonorrheal infection of the urethra, and the paratyphoid injections intravenously. Within two weeks the cast was removed and the patient walked about in perfect comfort.

CASE V.—Gonorrheal spine. Young adult male had had three urethral infections. After his second infection, two years previous to the third, he showed spinal involvement and was one of the first patients treated by intravenous paratyphoid injections, and formed one of the cases on which our enthusiasm was based. Last October he was again

infected with gonococci, and showed symptoms of spondylitis, as well as painful feet. Spurs were present on both heels. Despite paratyphoid vaccine intravenously and proper antgonorrheal treatment for the foci of infection, the urethra and prostate, the spine had not shown improvement, although six injections instead of the average four had been administered. X ray of the spine led to the possibility of the condition being one of tuberculosis, so a cast was applied. After three months he felt easier but was not without pain. Another course of the paratyphoid was instituted and after the third injection the pain in the spine was relieved and he was able to dispense with the cast. He was then restored to useful function. This case seemed to indicate the necessity for complete interrelationship between the urologist and the orthopedic surgeon, as it was only by the combined efforts that a cure was possible.

COMMENT.

The cases cited above serve to illustrate as mentioned before groups of cases that come under observation. In nearly all of our cases the intravenous injection of the nonspecific vaccine has given excellent results, and restored joints in a comparatively very short time. In other cases, especially those of long standing, the aid of the orthopedist must be had for the application of the proper support (plaster of Paris casts). It is essential that the local treatment for the source of the infection must be appropriate for the eradication of the gonococcus in the genitourinary tract, whether it be purely an anterior infection, or one involving the prostate and seminal vesicles or kidneys. In my opinion, the dose of the vaccine must be large enough to set up a reaction; rise of temperature and chill. It has seemed that the results have been proportionate to the reaction in each case. The disappearance of the gonococci in smears seems to be hastened after the intravenous injection of the vaccine and the subsequent reaction. European observers have found the same result after the injection of whole milk, and have recommended such injections for gonorrheal and other infections. It has also been observed that a course of high fever attending some intercurrent infectious disease has a very favorable influence on the course of a gonococcal infection. This in a way is a confirmation of my work with the paratyphoid vaccine injections.

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15 CENTRAL PARK WEST.

Ureterocele.—M. Lavandera (*Surgery, Gynecology and Obstetrics*, February, 1921) asserts that from a careful study of all the papers on ureterocele from 1856 to the present day, together with the cases reported, seems to warrant the conclusion that ureterocele, found at birth and at all ages, about equal in number for both sexes, rarely bilateral and frequently associated with other anomalies, are congenital malformations.

A NEW METHOD OF RELIEVING PAIN IN ACUTE EPIDIDYMITIS*

By LOUIS NAGORSKY, M. D.,

New York.

It is a well known fact that treatment for the relief of pain in certain areas of the body is often applied to distant points in the anatomy. In 1897 Fliess (1) called the attention of the medical fraternity to the relation of the nose to the female genitalia. In this article he brought forth the fact that certain tissues in the nares bore a sympathetic relationship to certain tissues of the genitalia. He noticed that during menstruation the erectile tissue of the nares, on one or both sides, was more congested or swollen than during the rest of the month, or nonmenstrual period.

This erectile tissue of the nares was also described by Zuckerkandl (2) as genital spots, or sensitive spots, otherwise known as swell bodies. These bodies are composed of a mucous membrane, covering the turbinate bones at certain places, and consist of connective tissue, the outer layer covered with flat epithelium, the deeper layer forming the periosteum of the turbinate bones. Between these bones are lymph tissue and within this lymph tissue abundant venous plexuses are found. About the plexuses are unstriated muscular fibres in abundance. The presence of these venous knots gives the tissue the character of erectile tissue, such as that found in the corpora cavernosa of the penis.

To refresh our knowledge of this subject further, I will add that the location of these genital spots are situated along the borders and ends of the inferior, middle, and superior turbinate bones.

As the erectile tissues of both sexes do not differ in their anatomical structure and topographical arrangement, and as their functions apparently are analogous, it occurred to me that there must be a similar relationship between the sensitive spots and the male genitalia similar to that in the female. It is known that during coitus the swell bodies become engorged, and this accounts for the occlusion of the nares resulting in difficult breathing.

Fliess has located certain abdominal cramp points or areas in the left nares along the side of the middle turbinate bone. In the treatment of dysmenorrhea, he found that when he cocaineized the swell bodies, the patient experienced immediate relief.

Mayer (3) has described the use of intranasal applications of epinephrine for the relief of dysmenorrhea. This same writer, in conjunction with Brettauer (4), applied other methods beside the use of trichloroacetic acid, such as galvanocautery and bipolar electricity, with equally good results.

It has been agreed upon by investigators that the reaction which follows the local application of a drug to the nares is a reflex phenomenon. Vicarious menstruation is another proof that the nose belongs in the same category with the genital organs, otherwise how is the monthly nasal flow explained.

As pointed out above, the swell bodies are swollen during congestion of the genitalia of the female. I have observed the same condition present in the male

*Read before the Clinical Society of the Bronx Hospital, March 13, 1922.

suffering from an acute epididymitis. He will complain of a cold in the nose, and also remark that his nose feels stuffy.

This leads me to the belief that if pain was relieved in the female suffering from conditions incident to congested genitalia by this method of treatment, namely, intranasal applications of cocaine, taking other factors into account it might give the same results in the male.

It is evident from our observations and others that the function of the swell bodies is not only to humidify and temper the air to avoid irritating the lower air tract, but they also have a part to play in the sexual makeup. When we realize that erectile tissue all over the body is constructed alike, and that organs having analogous functions are similarly constituted, we know that the uterus, for example, is composed of unstripped or smooth muscle tissue, similar to that found in the vas, epididymis, and seminal vesicles.

Some urologists, in their treatment of gonorrhea, administer belladonna to prevent peristalsis in these organs. This is done with the hope of preventing the urethral infection from being carried to the seminal vesicles, epididymis and testicle. The peristalsis of these organs (i. e., the seminal vesicles and epididymis), in their effort to rid themselves of the effete matter present, might account for the excruciating pain; although it is argued that distention or pressure is the real cause.

Again, if we are to compare this condition (epididymitis) with a mucous colitis, where we have an inflamed intestine, the peristalsis caused by some offending irritant within the intestinal canal, we know that the pain is caused by this violent peristaltic movement, which in its effort to rid that organ of the poison, causes an overstimulation of the nerve ends supplying the walls of the intestines, with the resultant violent pain.

It will be argued that this theory does not answer the question, because it has been stated that only those organs which have a serous covering, and when inflamed, are affected by peristalsis, and that other organs, not so protected, like the epididymis, for example, the pain is due to infiltration or congestion.

We know that all unstripped or smooth muscle tissues are supplied by branches of the sympathetic nervous system, which system is intimately connected with the central nervous system by communicating branches or *rami communicanti*. So that any irritating impulse emanating from the epididymis, for example, is carried through the *rami communicanti* to the central nervous system. As a result of this irritation of the sympathetic nerves, which are visceral nerves, peristalsis ensues; therefore, it seems logical that the peristalsis in an organ composed of smooth, involuntary muscle is the cause of the pain present in that organ, due to local irritation.

Similarly, the nasal mucous membrane, especially the erectile tissue, is likewise enervated by the branches of the sympathetic nervous system. So that an analgesic or anesthetic when is applied to the sensitive spots, the pain impulse apparently is blocked, resulting in its cessation. This phenomenon we attribute to reflex action. Not only drugs,

but, as described above, external irritants, such as the electrocautery, accomplish the same reaction; proving no biochemical change takes place.

As my experience is limited to cocaine and novocaine, for local application in the nares, I am not in a position to make any report at this time with other methods. Most likely the results would be the same. The limited number of cases presented for observation leaves much ground for study, and I hope to present more complete data in a future report.

In Dr. J. J. Asch's clinic at the Lenox Hill Hospital, where most of my observations were made with this new form of treatment, it used to be our practice to inject the cocaine or novocaine directly into the epididymis for the relief of pain.

It is not the purpose of this article to enumerate the various methods used for the treatment of acute epididymitis, nor to compare their efficiency; it is only with the intranasal application that we are concerned.

It is remarkable to note the immediate relief the patient obtains from this painless method of relieving pain. When we see a patient suffering with an acute epididymitis straddling into the clinic or our private office, every step an agony, we can appreciate his predicament. But five minutes after the nasal application is made the patient experiences marked relief and often complete relief from pain.

At first it was contended by some of my colleagues that it was a psychic reflex, but as they were convinced that the patient was not cognizant of the nature and purpose of this form of application, they soon realized that there was something about the treatment that did not brook of the speculative.

This method of treatment may be applied not only for the relief of epididymitis, but also for acute hydrocele of the cord, acute orchitis, and traumatic congestion of the genitalia.

The method of applying the treatment consists of placing into the nares an applicator covered with cotton saturated with a one half to one per cent. solution of cocaine or novocaine (without adrenalin) and left in place for five minutes. Careful introduction of the applicator is essential, and must be pushed sufficiently posteriorly so that the medicated cotton lies in close contact with the turbinate borders.

It is a simple, painless operation, and requires very little skill; but in order to obtain the desired effect, the proper technic is essential. The applicator is easily passed, providing the operator hugs the floor of the nasal cavity, and when he feels he has reached the posterior chamber, to gently tilt the distal end of the applicator to an angle of about twenty-five degrees. It is advisable to have the cotton sufficiently thick to clog the posterior nares.

The patient, when questioned a little later, declares he feels much better, and in many instances there is a complete absence of pain. Pressure on the inflamed epididymis is easily tolerated by the patient, and he walks with greater ease. He is able to sleep; whereas, prior to the treatment, the pain rendered him miserable, and caused him to toss about in unrefreshing sleep. The pain may return again in from two to eight hours, but in a mild form. In some cases, the cessation of pain was permanent.

While no claim is made that this treatment acts as an adjuvant in the cure of the disease, it is only for the relief of pain that this new method of treatment is introduced. Below is appended a few of the cases taken at random from clinical and private material.

Case I.—C. D., came to Lenox Hill Dispensary on November 3, 1919, with a history of having lifted a heavy barrel on October 30, 1919. Three days later he noticed a swelling of the testicle. He remained in bed until November 3, 1919, when he presented himself for treatment. He was suffering intense pain, and a diagnosis was made of acute orchitis and acute hydrocele of the cord. A one per cent. solution of cocaine was applied intranasally for five minutes. The patient experienced instant relief and was able to walk without pain.

Case II.—H. K., a cook, aged twenty-three, presented himself for treatment on January 20, 1920. He had an attack of acute gonorrhea and a week later right acute epididymitis developed. A one per cent. cocaine solution applied intranasally for five minutes produced marked relief.

Case III.—M. M., a carpenter, had an attack of acute gonorrhea and three days after left acute epididymitis developed. He presented himself for treatment on November 5, 1920. A one per cent. novocaine solution was applied intranasally for five minutes with marked relief. The patient was able to walk with ease.

Case IV.—T. M., came to the Lenox Hill Dispensary for treatment on July 8, 1921. A diagnosis of left epididymitis and vasitis was made and a one per cent. solution of novocaine applied intranasally. The patient experienced complete relief and was able to walk without pain.

Case V.—A. B., a laborer, aged twenty-one years, who suffered from left epididymitis and vasitis. A one per cent. solution of cocaine applied intranasally produced marked relief. The patient was able to walk without pain.

No alarm need be entertained that this method will result in the patient becoming an addict, because one application usually comprises the whole treatment.

In presenting this preliminary report it is with a feeling of hope that this subject will continue to awaken the efforts of the members of the medical fraternity along the lines of painless treatment for the relief of pain. Though my experience has been limited to twenty cases, I feel satisfied that the results have proved very promising.

In conclusion, I wish to thank Dr. J. L. Wollheim for his kind encouragement, and also for trying out in his private practice this method of treatment.

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968 KELLY STREET.

Diuretic Action of Calcium Chloride in Nephritis.—L. Blum, Auel, and Hausknecht (*Bulletins et mémoires de la Société médicale des hôpitaux de Paris*, February 9, 1922) point out that by combining administration of calcium chloride with the salt free diet marked diuresis can be obtained in various forms of nephritis even where the ordinary diuretic measures have failed. The amount of calcium chloride administered in their cases varied from five to as much as nineteen grams a day, the latter amount, however, being continued only for two days, while in some cases eleven grams a day were continued for a week. The cases related include cases of severe hypopigeneous chronic nephritis, of acute hemorrhagic glomerulonephritis, and of chronic mixed nephritis. Calcium chloride proved superior to potassium salts, previously used with success in a number of cases of obstinate edema of renal origin, in that it causes gastrointestinal disturbances much less frequently and never induces circulatory symptoms. It can be used in all forms of nephritis, even those associated with marked lesions in the circulatory organs. Calcium chloride is the most effective and harmless diuretic in the edema of Bright's disease, and its administration with the salt poor diet constitutes the treatment of choice in such cases.

Sarcoma of Prostate.—Stern and Ritter (*American Journal of Surgery*, August, 1921) state that of the thirty-six cases thus far reported, there have been eleven different types of sarcoma found. Most of the tumors have been found to occur during infancy and early childhood. Only eight of the growth were found in men over fifty-eight years of age. The tumor itself very frequently has been found to grow to a considerable size, so as to completely fill the pelvis, forcing the bladder upward and forward; at times producing no residual urine, and at other times, when there is pressure upon the prostatic urethra, much residual urine is present. In a case reported by Young, forty-four ounces of residual urine were obtained. The consistency of the tumor may vary from that resembling an abscess, soft, and apparently fluctuating, to a consistency simulating the stony hardness of sarcoma of bone.

Sarcoma of the prostate may have occurred, and probably does occur, more frequently than medical literature indicates; for the symptoms in these cases vary a great deal, as most patients do not complain of any pain or difficulty in urination until urinary obstruction develops. Pain is rarely complained of before the growth has done its damage. In some cases, the diagnosis is not made because the patient complains only of constipation and difficulty in bowel movement from pressure or extension into the rectum. In a few cases, urinary retention was the first symptom of the growth. Hematuria is uncommon in this condition. McGowan reports a case in which the patient was apparently cured, but died four years later of cancer of the liver. This is the longest any patient has lived after the diagnosis was made.

In the case reported by the authors, although the patient had been given prophylactic x ray treatment, and there was an apparent complete removal of the growth at operation, and the patient received

840 milligram hours treatment with radium, yet within two months the growth, which at the time of operation was limited to the left lobe of the prostate, had extended so as to involve the entire bladder, rectum and abdominal wall. Had a positive diagnosis been possible preoperatively, more could have been accomplished by a simple cystotomy accompanied by x ray and radium treatments, than by any known surgical procedure.

Treatment of Pyelitis.—Kretschmer (*Surgery, Gynecology and Obstetrics*, December, 1921) concludes that pelvic lavage with silver nitrate is an efficient, simple method for treating infections in the renal pelvis. In this series of cases 66.4 per cent. of the patients treated were finally discharged with urine sterile and free of pus. In selecting cases for treatment, lesions of the urinary tract of a surgical nature must be excluded. Lesions of the abdominal viscera which may be factors in contributing to relapses or rendering this treatment inefficient must be recognized and treated.

Bone Metastases in Bladder Carcinoma.—H. L. Kretschmer (*Surgery, Gynecology and Obstetrics*, December, 1921) offers the following conclusions: 1. Bone metastases occur beyond a doubt in cases of carcinoma of the bladder. 2. Their occurrence is uncommon as compared to the frequency of bone metastases in carcinoma of the prostate. 3. Extensive metastases may be present although the primary tumor in the bladder be small. 4. Prior to operation or radium treatment, routine examination of the osseous system, by means of röntgen rays, to make certain the presence or absence of metastases should be carried out in all cases.

Pericarditis in Chronic Nephritis.—Alvan L. Barach (*American Journal of the Medical Sciences*, January, 1922) gives a description of the clinical and laboratory characteristics of a group of thirty cases of chronic nephritis at the time of development of an acute pericarditis. A marked nitrogen retention in the blood, a constantly present acidosis, a high blood pressure, severe secondary anemia and a tendency to hemorrhage were conspicuous features. It is pointed out that pericarditis is not a terminal complication in the sense that it always terminates the life of the patient. The average duration of life after the onset of the pericarditis was twenty-nine days. Excluding a patient that lived one year thereafter the average figure was sixteen days. Death in many of these cases did not seem linked with an advancing heart failure or to the acidosis, but rather to the progressive retention of nitrogen in the blood. Except in one case the diagnosis was made by the presence of pericardial friction and not by the signs of effusion. The diagnosis was made clinically in ninety percent. of the cases. In four cases direct culture of the pericardium yielded pyogenic organisms. In four other cases culture of the pericardium was sterile. In the infected cases the cellular infiltration of the pericardium was predominantly of the polynuclear type; in the sterile cases the infiltration was predominantly of mononuclear type. The cases in which the pericardium was not cultured showed the pathological characteristics of the sterile group.

Reasons are given for believing that the majority of cases of pericarditis in chronic nephritis are of noninfectious origin. The assumption of a chemical irritant as cause of the complication is entirely compatible with the chemical toxemia of the patient and with the bacteriological and pathological findings in the pericardium. A small group of cases exists in which frank infection of the pericardium is present. It is believed that the pericarditis in this group is generally of true infectious etiology. The possibility is present, however, that the complication may sometimes be of chemical origin and the inflamed pericardium become secondarily infected.

Clinical Significance of Albumin of Plasma and Treatment of Renal Diseases.—V. Kollert and W. Starlinger (*Wiener klinische Wochenschrift*, February 16, 1922) examined a series of nephroses and found, without exception, excessively high values for fibrinogen, which induce a fifty fold rapid sedimentation of the erythrocytes. Whereas normally, only an opalescent clouding, or at most a finely granular flocculation results from the addition of sodium chloride or from heating, in nephroses the fibrinogen falls in a thick precipitate. In nephroses the variations of the albumin in the blood and urine run parallel. The authors emphasize that not every increase of the fibrinogen content of the plasma is associated with albuminuria, but that the latter appears only when a simultaneous renal injury is present, or when the fibrinogen increase is excessively high. Pure euphyllinum and sodium salicylic theophyllin usually act analogously, but are quantitatively weaker than urea and caffeine sodium benzoate. Thyroidin acts upon the fibrinogen molecule but differently from the other drugs.

Behavior of Syphilitic Leucoderma toward Bloch's Dopa Reaction.—Ernst Gold and Friedrich Reiss (*Wiener klinische Wochenschrift*, February 2, 1922) base their investigations on Bloch's statement that leucoderma, vitiligo and albinosis can be recognized by the absence of the Dopa ferment in the protoplasm of the pigment forming basal and hair matrix cells. In the leucoderma the displacement of the pigment occurs as follows: On the basis of a local hyperpigmentation, of which the hyperpigmented marginal zone is to be considered as the remains, 1, there is in the beginning no or only a slight influence on the epithelial pigment formation, as is shown frequently by only a suggestion of local weakening of the Dopa reaction; 2, there occurs an early beginning, abnormally marked displacement through the lymph stream of the epidermal pigment present and newly forming toward the cutis, as is shown by the increase of the cuticle pigment in fresh leucodermas at the site of the depigmentation, whereas the pigment forming basal cells, with a simultaneous distinctly decreased pigment content, show a partly unchanged or a slightly weakened Dopa reaction; 3, there finally occurs a marked weakening of the Dopa reaction, even down to absence, associated with a decrease in the number of usually active cuticle pigment cells which never react to Dopa, and also in the occasional free pigment, which is only present in so far as the epidermis can form pigment, that is, give a Dopa reaction.

Renal Function in Röntgen Ray Intoxication.—Irvine McQuarrie and G. H. Whipple (*Journal of Experimental Medicine*, February, 1922) report experiments with normal adult dogs exposed to a carefully measured dose of the hard röntgen rays of the Coolidge tube, following which the renal function was determined for a period of a week or more. The results give no support to the current belief that an x ray nephritis may be produced by direct or indirect action of the hard röntgen rays. There was a minimal disturbance of renal function by the direct action of large doses of the hard x rays, but no anatomical evidence of cell injury. Repeated moderate doses of x rays over considerable periods of time have no demonstrable influence on renal function or renal structure. The writers feel assured that clinicians may use the x rays over the kidney areas with confidence that renal tissue is resistant to the hard röntgen rays.

Röntgen Ray Intoxication.—I. S. L. Warren and G. H. Whipple (*Journal of Experimental Medicine*, February, 1922) found that röntgen radiation of the thorax (abdomen shielded) even with large doses, up to 512 milliamperes minutes, gives no clinical evidence of intoxication, while such radiation of the abdomen (thorax shielded) with a dose of 350 milliamperes minutes will almost certainly cause a fatal intoxication. Normal dogs were used for this work. From their experiments they believe that the fundamental thing in the systemic intoxication due to the röntgen rays is a primary injury of the epithelium of the small intestine. This sensitiveness of the intestinal epithelium to x rays is not appreciated and should be given proper consideration in clinical work. The second and third papers in this series discuss the sequence of clinical, anatomical, and histological changes following a unit dose of x rays, and the speed of autolysis of various body tissues after lethal x ray exposures.

Treatment of Syphilis.—L. W. Shaffer (*Military Surgeon*, November, 1921) says that over four centuries in the treatment of syphilis with mercury failed to develop any satisfactory standard of treatment. More than ten years' experience in modern methods of treatment has likewise failed to bring us much nearer this goal, but advances have been made in this direction. At least the use of arsenicals and mercurials in association, with few exceptions, comprises the basis of modern systems of treatment. Time and observation of treated cases only will determine the mode of application, dosage, number of courses, and the length of periods of rest best applicable for cure.

It is recognized that many syphilographers refrain from announcing a system of treatment, realizing that more is necessary than the simple 1-2-3 steps of system in piloting a given case to cure. It requires a thorough knowledge of the disease, a technical and therapeutic knowledge of methods of treatment, and the handling of complications that cannot be incorporated in a simple standard of treatment. Yet the author strongly favors the adoption of some standard of treatment, at least for early cases of syphilis, in the United States Navy. There are several reasons for the adoption of such a standard. The service would benefit in the establishment of a standard

for treatment whereby cases could be checked up and followed through a set course of treatment, barring complications, with less danger to the patient and more promise of cure than where various standards are followed in the same case.

More satisfaction among patients would be produced by a standard treatment, and a better spirit of cooperation would be secured if they were not given various treatments according to the special leanings of different medical officers.

Influence of Syphilis on Pregnant Women.—G. Gellhorn (*Surgery, Gynecology and Obstetrics*, June, 1921) concludes that discussions on syphilis in pregnancy have, in the past, been limited almost altogether to the harm that may befall the unborn child; and most of the textbooks on obstetrics convey the impression that the mother has nothing to fear from the disease. While this is true of a very large percentage of the cases, the writer has attempted to show from personal observations and a review of the available literature that syphilis is capable of producing real complications—whether in pregnancy, by impairing the general health of the patient, or in labor by obstructing the birth passages or causing other more or less serious damage, or else in the puerperium by adding to the morbidity and mortality of that state. The possibility of syphilis must be borne in mind, particularly when one has to deal with obscure recalcitrant disturbances in pregnancy, and once our diagnosis is made, we must give energetic and systematic treatment to such women throughout the period of pregnancy.

Atrophic Pyelonephritis.—William F. Braasch (*Northwest Medicine*, January, 1922) says that at operation it is often difficult to find the diseased kidney, since it is often displaced and covered with fibrous tissue as a result of accompanying perinephritis. The kidney may be only three to five centimetres in diameter and is easily overlooked. Although the small amount of tissue removed is out of proportion to the severity of the patient's symptoms, nevertheless such symptoms disappear following removal of the kidney. The results of operation for atrophic pyelonephritis have been very satisfactory. Improvement or cessation of vesical symptoms and improvement of the general condition have been accomplished for practically every patient. Only three patients out of twenty-two reported that evidence of urinary infection persisted, and only one of these asserted that there was no improvement. One patient was reported as having died from unknown cause three months after operation.

Treatment of Visceral Syphilis.—Thomas McCrae (*Therapeutic Gazette*, February 15, 1922) believes that the cure of the spirochetal infection in visceral syphilis is to be hoped for but is uncertain. Arsphenamine and neoarsphenamine should be given in small doses, especially with aortic disease, and not at all in hepatic syphilis. Mercury should be regarded as an important aid in treatment. Treatment should be given as intensively as possible and repeated once a year for five years or even once a year for the duration of the patient's life. Our attitude towards the Wassermann reaction, whether positive or negative, should be a conservative one.

Proceedings of Societies

NEW YORK ACADEMY OF MEDICINE.

SECTION IN GENITOURINARY SURGERY

Stated Meeting Held on January 18, 1922.

Dr. ABRAHAM HYMAN, Chairman of the Section, Presiding.

Renal Calculi.—Dr. B. S. BARRINGER presented a kidney containing three large calculi which had been removed from a patient giving symptoms that indicated nephrectomy as the operation of choice; two of the large stones had filled the kidney pelvis. The patient was a fat woman, forty years of age, who made an uneventful recovery from the operation.

Hydronephrosis.—The second kidney specimen exhibited by Dr. Barringer had been removed from a patient who was still in the hospital. She gave a history of having had a pain in the right side for a number of years. She had had two operations, one for gallstones and one for appendicitis, but still had the pain. Her physician discovered that there was a large tumor in the right side of the abdomen, within an inch of the umbilicus; it was movable and felt cystic. Catheterization showed no urine from the right side and normal function on the left side. An attempt was made to get a pyelogram, but the bromide did not go into the kidney pelvis. The x ray showed only a large mass occupying the site of the right kidney. It seemed probable that there existed kidney tumor, and on cutting down this large mass a hydronephrotic kidney was found. The interesting part of the case was that there were no veins at the lower part of the kidney causing the hydronephrosis. Evidently the hydronephrosis was caused by adhesions around the upper ureter. The kidney was removed without difficulty and the patient made a good recovery.

Cystograms of Interesting Bladder Cases.—Dr. O. S. LOWSLEY presented a series of lantern slides of interesting cases of bladder disease, some of which were: 1. Sodium iodide picture of a diverticulum with the opening into the bladder occurring at the posttrigonal region.

2. The relation of the internal sphincter in tabes, in which condition the bladder and posterior urethra formed practically one and the same organ. It extended to the umbilicus and presented a number of irregularities.

3. Sodium iodide in woman's kidney, showing the calices around the kidney.

4. The picture of a catheter coiled up in a diverticulum after the method proposed by Dr. Alfred Osgood. A catheter may be seen in the diverticulum.

5. The diverticulum injected.

6. A similar diverticulum with the catheter coiled in it and the other catheter passing into the ureter and kidney pelvis. There was a similar filling of the diverticulum in that case with a little leaking into the bladder.

7. The same case, with complete degeneration of the bladder, showing the numerous smaller diverticula. The opening of the main diverticulum faintly shown, and an enormous diverticulum filled to capacity. The ureter passed under the diverticulum.

8. Shows injection of the ureter. The kidney had been removed from this side, and a partial injection of the ureter was made on that side.

9. An extrophy of the bladder. The two ureters could be seen here, and the big red mass on the front of the man's abdomen. This showed the absence of the pubic bones, which always occurs in these cases.

10. A cystitis cystica, a cross section of the vesical lining.

11. A cystogram with double ureter and double kidney pelvis on both sides.

12. This picture showed the two kidney pelvis, the ureters in close apposition as they descended. The other kidney could be seen at this point, with the ureters coming down here.

Dr. O. S. LOWSLEY, replying to a question from Dr. PEDERSEN in regard to the method used, said that the beef kidneys were filled with the solution under considerable pressure. The rabbits' kidneys were filled so full that with the kidney exposed one could see the kidney itself swell. The conditions were made as unfavorable as possible. The damage was noted two weeks afterward. The solution was tried in various strengths, and a fairly good shadow was obtained with ten per cent. sodium iodide, but practically all the pictures were taken with twenty per cent., which did not seem to irritate.

Demonstration of Instruments.—Dr. VICTOR C. PEDERSEN presented a syringe of which the main features were a metal case, all wearing parts asbestos, and Scotch gauge glass cylinder. This glass must be the genuine Scotch gauge glass which was annealed for boiling water and steam, thick enough to hold against steam pressures, and elastic enough to accept considerable rough handling. The syringe might be dropped into boiling hot water or upon the floor, or instruments might fall upon it in ordinary ways without breaking it.

Dr. PEDERSEN next presented a virgin speculum for diagnosis in venereal disease suspects in young unmarried women of full stature and therefore with long vaginas. The usual virgin speculum was an inch shorter than that for childbearing women, hence it must be crowded into the vulva of such young women, in order to reach the cervix, which it often failed to do. The crowding brought the expanding conical portion at the hinge against the hymen and damaged it in girls who had not had coitus. The speculum shown had the full length of the standard instrument for parous women, but all other measurements were those of the former virgin type. This speculum had been endorsed by the New York Medical College and Hospital for Women.

Dr. HYMAN, introducing Dr. Carelli, said that he had been in New York for the past three weeks, he had had a large experience with this work, having injected over 300 cases in his own office. Not content with injections of air into a preformed cavity, he had undertaken to introduce air and make a new cavity and had devised a method of injecting air into the perineal space so as to bring the kidney into sharper outline.

Pneumoradiography.—Dr. H. H. CARELLI, of Buenos Aires, demonstrated a new procedure to visualize the kidneys and suprarenal glands, the method employed, and demonstrated a large number of films in which all the parts of the kidney stood out showing their contour and relative positions, almost as clearly as revealed by an autopsy, the suprarenal glands being clearly seen. Radiograms of intraperitoneal air injections showed nearly all the solid organs of the peritoneal cavity, and were found to be useful in studying tumors, uric acid calculi and tuberculosis of the kidney.

Dr. LEWALD said that the work done by Dr. Carelli was one of the four or five greatest advances made since röntgenography was discovered. The use of air injected into the peritoneal cavity had been worked up in this city by Dr. Stewart and Dr. Stein, who gave full credit to Dr. Carelli for his improved technic. The use of air about the kidney was entirely new here, and the result wonderful; the field was practically unexplored, and offered boundless opportunities for study. The question of lesions of the suprarenal gland was included in this field, and much might be learned there shortly. Tumors occurred in this region that were not definitely connected with the kidney or the suprarenals but were closely related. He had seen some cases that could doubtless have been diagnosed with this new technic, had it been available. Of course with any new procedure the question would always arise as to whether it was attended with any dangers or discomforts, and any points that Dr. Carelli could add in regard to the technic would be most acceptable and much appreciated. It seemed to be harmless and without any restrictions. Dr. LeWald wanted to know whether after Dr. Carelli changed back to air using carbon dioxide and whether he considered air perfectly satisfactory, and the best gas to be used for this purpose.

Dr. BEER said that the work of Dr. Carelli marked a distinct advance in radiography of the retroperitoneal organs, the adrenals and the kidneys, and that he was to be congratulated upon adding to the knowledge and the refinement of radiological technic. Beside the adrenals there were several conditions in which this method should be tried. In renal hematuria of unknown origin, where the diagnosis of neoplasm could not be made, this new method might throw much light on the condition and suggest the proper diagnosis when a neoplasm was present. Then, with patients who were suffering from attacks of renal colic, in the presence of negative radiographs, the question arose whether they were suffering from uratic or uric acid stones and whether these would show when the kidney was surrounded by an emphysema. Dr. Carelli had shown a case in which a stone, which did not show on the x ray plate, was found by this method. If that was the rule, this method would be of the greatest aid in the diagnosis of renal stones of this composition. Up to this time uric acid stones (in this neighborhood) had comprised about twelve per cent. of the cases and it had been almost impossible to recognize them except by passing a wax bougie into the pelvis.

Dr. MARTIN WARE said he wished to direct the attention of the section to an article which appeared in the *Journal A. M. A.*, December 31, 1921, in which reference was made to a perirenal infiltration of air as the method of Rosenstein; and also to state that it was the consensus of opinion of the members present at the Urological Congress that the method was fraught with many dangers. He hoped that Dr. Carelli might be able to throw some light on this point.

Dr. HIRSCH said that Dr. Carelli had demonstrated the method and the radiographs in the laboratory at Bellevue Hospital. The demonstration was certainly a convincing one. He had employed the method twice and Dr. Keyes had employed it in one case. It was apparently without danger. If there was any difficulty at all in the technic, it was in the finding of the transverse process of the second lumbar. This might be palpated or might be determined by marking a point four inches above the posterior intercostal line and one and a half inches from the median line. No anesthesia was necessary for the procedure. The needle used was an ordinary lumbar puncture needle of not too large calibre with the stylet in place. This was inserted about an inch and three quarters until the transverse process of the second lumbar was felt with the needle. The point of the needle was then depressed so that it entered the perirenal fat just below the transverse process. The full distance of the outer skin from the point of the needle should then be about two inches. From three to six hundred cubic centimetres of oxygen were injected. The radiographs were likely to show the kidney distinctly. Apparently in Dr. Keyes's case it cleared up the diagnosis. In the making of the exposure it was not necessary to apply pressure nor was the cone brought into contact with the patient, nor was the usual upward tilting of the tube made. This method was a decided step in the direction of the improvement of the technic of the examination of the kidney, and Dr. Carelli was to be congratulated upon this achievement.

Dr. JECK said that Dr. Keyes was so pleased with the result of his first trial of this new method that he had asked him to report the case in detail. The patient was first admitted to Bellevue Hospital in February, 1920. His chief complaint was pain in the right loin and increased frequency of urination. His history at that time, which was much the same as it is at present, was as follows:

For fifteen months the patient had been suffering from dull grinding pain in the right loin with occasional acute exacerbations. At times this pain would radiate to the groin and seemed to be increased by activity. Frequency varied from two to eight times at night, and every four hours to every half hour by day. Physical examination revealed a slight tenderness over the right kidney region, and also a slight discomfort over the right lower quadrant on pressure. Both epididymes were indurated, but not nodular, vasa not enlarged, prostate and vesicles scarred (presumably inactive lesions of tuberculosis).

Two cystoscopic examinations were made at the time of the patient's first admission, but neither presented any conclusive evidence. The urine from

both kidneys showed a few scattered leucocytes and in the first cystoscopy the function of the left kidney was apparently slightly better than the right, while at the second cystoscopy the reverse was true. Acid fast bacilli were looked for in the urine, but not found. On account of the almost negative cystoscopic findings, together with uncertain x ray findings, the patient was discharged with instructions to return in case his symptoms persisted after a reasonable length of time.

He returned in January of this year, and was again cystoscoped. We were unable to get any kind of a catheter up the right ureter for a distance of more than one centimetre. A small quantity of indigocarmine, injected intravenously, appeared promptly from the left ureteral orifice, but not at all from the right during twenty minutes' observation.

In the hope that we might get a ureteral catheter up the right ureter to obtain a pyelogram, the patient was again cystoscoped a few days later by Dr. Keyes. Both Dr. Keyes and Dr. Jeck failed to pass the catheter more than one centimetre past the right ureteral orifice. Indigocarmine, ten c. c., were injected intravenously and appeared promptly in good concentration from the left ureter. A faint trace only came from the right side during ten minutes' close observation.

It was at this juncture that Dr. Carelli appeared at Bellevue Hospital, with his new method of taking kidney radiograms by means of injecting oxygen into the perirenal tissues. In view of the still uncertain diagnosis, Dr. Keyes himself injected air into this patient and had him x rayed, with the result shown here. Dr. Keyes believed that these radiograms probably indicated a hydronephrosis at least, and he would therefore operate on the patient in a couple of days.

Dr. LeWald said that he once had had an opportunity to perform an autopsy in a case of transposed viscera. The suprarenal glands were definite in shape, one being crescentic and the other triangular. In cases of transposed viscera one could readily make the diagnosis with this method, for normally the right suprarenal was triangular, and the left crescentic. If on x ray examination one should find a crescentic shaped suprarenal on the right side the inference could be drawn that there was a complete transposition of the viscera.

Dr. Carelli, in closing the discussion, said in reply to Dr. LeWald's question that he used carbon dioxide only in his office, where he was sure of being able to take the radiograph before the absorption of the carbon dioxide took place. The carbon dioxide usually disappeared within an hour or so. The nitrogen was not absorbed as quickly as the pure oxygen. Probably the discomfort of the patient would be longer; but in his experience every patient had been able to leave the office in the same condition in which he entered it; and those who had seen the work here—Dr. Hirsch, Dr. Imboden and Dr. Hyman—had seen the patients get up and leave the table without any discomfort.

Dr. Carelli said he agreed entirely with what Dr. Beer had said about the indications from the urological point of view, and that he had tried to show a procedure which he thought would be help-

ful in urological conditions. In regard to the work of Dr. Rosenstein, he said that he had left Buenos Aires in September, 1921, and before that had made his first communication to the Argentine Society of which he was president; and being in Berlin with Dr. Rosenstein, the latter stated that he had published his work recently—perhaps in December—but that his own communications had been made five or six months before that, so that there was no question about the priority. Dr. Rosenstein himself admitted that his technic was not so sure as Dr. Carelli's.

Dr. Carelli said that he made the injections with a special apparatus whereas Dr. Rosenstein injected only air with a syringe. It was necessary to use caution and not put the needle in anywhere and produce an emphysema.

Referring to Dr. Hirsch's remarks, Dr. Carelli said there was no difficulty in finding the transverse processes. In thin persons one could very well palpate the first and second lumbar processes; between those two was the transverse process. In abnormal cases the point of departure might be three to four centimetres outside the middle line. At Mount Sinai the method was successfully used in an exceptionally fat woman. Only in very stout persons was it necessary to take an x ray with a metallic point in position. Generally he touched the two spinous processes and between them made the puncture.

Replying to an inquiry from Dr. Lowsley, Dr. Carelli said that he employed the Forlanini apparatus, and then drew a diagram and showed the method of using it in making retroperitoneal injections.

Dr. Hyman agreed with what Dr. Carelli had said, that at Mount Sinai they gave him a very difficult subject to demonstrate; the patient was an enormously fat woman, and if he could succeed in that case he certainly could succeed in any. He then said he was sure the members of the section would join him in a vote of thanks to Dr. Carelli for his brilliant demonstration.

Contracture of the Bladder Neck.—Dr. EDWIN BEER read a paper on this subject, which appears on page 536 of this issue.

Dr. Lowsley expressed his appreciation of Dr. Beer's excellent presentation of the subject, although he did not agree with him that the suprapubic method of approach was the best. He himself always approached it through the urethra, either with the Young punch or with the high frequency current—rarely by the Chetwood method, for that was apt to result in incontinence. His reason for preferring the intraurethral operation was that the period of convalescence was shorter and one did not have to close a leaking wound in the suprapubic region; also the operation by the suprapubic route was unnecessarily large, and no matter what method was employed, continued dilatations were necessary afterward to keep the condition from recurring.

Dr. LeWald said that the condition of cardiospasm was a very striking one, and one could almost substitute that term wherever Dr. Beer used the term contracture. He had seen the condition in

children of ten to twelve years of age, although usually it was only seen in persons of twenty to thirty, and he had even seen it at sixty. There was no doubt that it was of early origin and was of the same nature as the contracture of which Dr. Beer had spoken.

Dr. Victor Pedersen inquired whether Dr. Beer had ever looked into the etiology of these cases from the viewpoint of early colon bacillus cystitis. He had seen a number of cases in young children. If the intensity of such cystitis were to reach the ulcerative degree then stenosis at the neck of the bladder would surely ensue, because the trigonum invariably suffered first and most from ulceration. Dr. Pedersen said he recently had had three cases in females. In one case, in an adult, bacillus coli ulcerative cystitis was so severe that it simulated cancer and would certainly have added cicatricial deformity to the infiltrating contracture of the bladder, if the patient had survived the general condition long enough. The second case, in a nine year old child, probably duplicated the first case, but the patient died soon after the consultation. Hence no subsequent data were known, as no autopsy was permitted. The third was in a three year old child, with hemorrhagic cystitis and colon bacilluria.

Dr. Barringer said that last summer he had seen the only surviving patient in sixty or seventy cases in which Dr. Keyes had operated by the Bottini method, and that patient had residual urine. Some ten years ago he had himself operated in a case of contracture of the neck of the bladder, and the patient had had partial incontinence ever since. Six months ago he had six ounces of residual urine.

Dr. Hyman said that Dr. Beer had brought out a very interesting point, and asked that he draw a diagram of the picture seen through the posterior urethroscope which he had stated was diagnostic. He then cited a case observed two years ago of a patient in his early forties, with a history of frequent urination dating back at least ten years. The man had been treated and had had his bladder irrigated with all sorts of medications, but no diagnosis had been made. At the time he came under observation he had eighteen ounces of very foul smelling turbid urine. The urethroscopic picture was the same as that described by Dr. Beer. A diagnosis of contracture of the neck of the bladder was made and dilatation was instituted with the Kollman dilator, and iodides given internally. The Wassermann test was negative. There was no improvement, however, and the patient finally consented to an operation. On opening the bladder a very tight internal sphincter was found, with the posterior lip resembling the lip of the cervix—a very hard posterior lip. A V shaped excision was made, and the bladder was closed, with drainage. The patient recovered and did very well. The residual urine came to three or four ounces, but the frequency and pyuria persisted, although the urine was clearer than before operation. Irrigations were kept up with the usual solutions, but there was no improvement. One day the patient was cystoscoped, using only cyanide of mercury; using a 1-2,000 solution instead of the usual 1-5,000. He had a very severe reaction, following this after which his urine

became absolutely clear. He returns once in a while for observation, and when examined last two or three weeks ago there was not a dram of residual urine; he had had no frequency, and his urine was absolutely clear.

Dr. Beer, in closing, said that it may not be appreciated by those who were not members of the section how commonly this condition was not recognized by the practitioner. Young men came in with ten to twenty ounces of residual urine, not having noticed the trouble until they used a public urinal and found that they could not void as quickly as their neighbors. In connection with the cases in young children, it was interesting to note that the cases presented with the x rays showed the same picture as the adult cases and, apparently, those cases that have only a mild obstruction in youth present themselves at twenty or thirty years of age as adult cases of contracture of the neck of the bladder. He said that at present he had under observation in the hospital a child of five with residual urine of thirteen ounces, pyuria and pyonephrosis, who was living on his right kidney. Only a few days ago his bladder was opened and the posterior lip of the vesical outlet was excised. It was only by giving a free outlet at the neck of the bladder that relief could be obtained in these cases, and beyond doubt there were a number of these patients living who had had one kidney removed without the surgeon realizing that it was a bilateral process. In one case a child, seen some years ago; the patient came in with a temperature and tender bladder, due to cystitis, with residual urine suggesting the picture of intraabdominal abscess. So far as the posterior urethra was concerned, it was a rather typical picture. In view of the fact that in many of these cases there might be complicating conditions, a simple punch operation might not cure. It was, therefore, more advisable at present to go in suprapubically and do whatever was necessary plus the removal of the bar.

Dr. Beer said that so far as cauterization was concerned, the worst hemorrhage he had ever had in such a case occurred after cauterization with bipolar high frequency current. The patient had to be transfused and almost died on the table before the bleeding was controlled. That took place twenty-six days after the cauterization, so whether one excised or used high frequency cauterization, the patient was liable to have bleeding and rarely it might be almost uncontrollable.

Pyelitis.—H. Dawson Furniss (*New York State Journal of Medicine*, January, 1922) advises, in acute attacks, that the patient be put to bed, and heat or dry cupping applied to the renal region. For the first week or ten days sodium citrate or sodium bicarbonate or both are given every three hours in forty to sixty grain doses; if not tolerated by mouth they may be given by rectum. Water is forced by mouth, and colonic irrigation either with tap water or two per cent. soda bicarbonate solution is done once or twice daily. If pregnancy is present an attempt is made to relieve pressure by posture. When the temperature drops to normal, which

usually happens in a few days, the patient is put on urotropin and acid sodium phosphate. Should such favorable effect not be produced in a few days, then ureteral catheterization and renal lavage should be done; most satisfaction has followed the use of one-half per cent. silver nitrate solution. In chronic cases we should determine the function of the kidney and the damage done, and it is in these cases that is seen the greatest value of local treatment. The lavage treatment is applicable in girls of four years or over, and in boys as young as eight years.

Letters to the Editors.

INTRAVENOUS AND SUBLINGUAL MEDICATION.

NEW YORK, April 10, 1922.

To the Editors:

Today intravenous medication is becoming the mode more and more. It is considered and properly so, in many instances, as being more accurate and less objectionable, than hypodermic injections into the muscles, or under the skin. While this is true, it must be constantly borne in mind that it must be used with great care and knowledge to be really useful, and if not useful, it may be often injurious and sometimes, even fatal in its effects.

There are numerous instances, however, in which sublingual medication may take the place advantageously, of both intravenous and hypodermic methods of treatment. This is eminently true where rapid effects are essential, either to abolish or mitigate pain, or to preserve life from impending heart failure. I have insisted upon this important fact several times in the last few years and have had corroborative testimony to its great practical value from successful and able practitioners. I wish very earnestly that sublingual medication, in view of its great advantages at times, both to doctor and to patient, would come into more general use and have a far wider acceptance by my profession, than it has at present. To those who wish to know further my conviction and belief in this matter, I refer them to the *Medical Record*, December 29, 1917.

BEVERLEY ROBINSON, M.D.

AUTOTHERAPY.

BROOKLYN, N. Y., February 7, 1922.

To the Editors:

In your issue of February 1, 1922, you publish a paper by Dr. Thomas M. Stewart, of Cincinnati, Ohio, on Autotherapy, in which credit is given for this form of treatment to Duncan, Waag, Brodin, Goldschmidt and others. Permit me to inform you and, through you, Dr. Stewart, that in October, 1910, Dr. L. D. Rogers, of Chicago, was the first physician to experiment with autotherapy. He employed this method, using the patient's blood, in a hopeless, inoperable case of cancer and, although the patient died six months later, the improvement in the patient's general condition was so marked that Dr. Rogers and many of his colleagues were led to use this form of treatment ever since, in all chronic

diseases with, they assert, about eighty-five per cent. cures or restoration to normal bodily functions.

Dr. Rogers termed this method autohemic therapy and the Autohemic Society of America was organized a few years later with a membership of over a thousand physicians scattered throughout the United States, Mexico, and South America. Their reports on autohemic treatment are remarkable for the success they state they obtained.

Dr. Rogers is the editor of the *North American Journal of Homeopathy* and, I presume, the Autohemic Society is made up mainly of homeopaths. They use the blood only and the technic used in making the autohemic serum is as follows: Under strictly aseptic precautions, one c. c. of blood is withdrawn from a vein and immediately put into a sterilized bottle containing nineteen c. c. of double or triple distilled water and allowed to stand for four hours and then violently shaken several times. Just why the time is limited to four hours I do not know. From this mixture of one c. c. of blood and nineteen c. c. of water, two c. c. are withdrawn and mixed with eighteen c. c. of double or triple distilled water and again violently shaken several times, and thus the process is repeated several times to potentize and attenuate the serum as many times as the doctor thinks advisable in the particular case under treatment, and then five c. c. of the many times subdivided solution is returned to the patient intravenously. The injection is repeated with a freshly prepared serum at intervals varying from one to several weeks depending upon the patient's reaction to the first injection. The exact amount of blood which the patient gets back into his venous circulation with the final solution is beyond my limited knowledge of arithmetic to compute.

Originally the first solution of blood was incubated for from six to twenty-four hours at body temperature and filtered before the subsequent solutions were made, but now both incubation and filtration are discarded as they proved of no therapeutic advantage.

My object in writing this letter is to place the credit for a therapeutic discovery where the credit is due, without regard to "race, creed or previous condition of servitude." I do not know Dr. Rogers except through his extensive writing and I am not a homeopath; neither am I ready to endorse autohemic or autotherapy before this promising method has been sufficiently tried and its *modus operandi* explained.

Dr. Stewart's paper is, to my knowledge, the first attempt at a rational and scientific explanation of why antibodies, produced by nature within the animal body as a protective or combative agent against disease will, when withdrawn, mixed and diluted with a foreign substance, such as water, react more favorably upon the body of the host than in their original state and virility.

I am sure that you are familiar with the work of Dr. Rogers and his followers in autohemic therapy, and will agree with me that credit should be given them in the medical press for the work they have done in what may prove the treatment of choice in the future.

SAMUEL A. LEWIN, M. D.

HEALTH CONDITIONS IN PORTO RICO.

NEWARK, N. J., March 31, 1922.

To the Editors:

Permit me to draw attention to the recently published annual report of the Commissioner of Health of Porto Rico. The death rate for the island during 1918-19 is stated to have been 31.75 in 1,000, having steadily increased from a minimum rate of 18.44 in 1,000 prevailing during 1913-14. The annual average for the last decade was 24.1 in 1,000 of population. During the year ending June 30, 1920, the rate was 23.3 in 1,000. It is evident that the American occupation of the island has not brought the sanitary reforms anticipated. It is true that the density of population is one of the highest of areas of similar size, but this would be of less importance than the fact, as stated in the report, that the population is "badly housed and fed, ill in health and ignorant of the first principles of hygiene." If we have any duty toward the island, which was brought under our control as the result of the Spanish-American war, it is to provide conditions that will favor health, energy, and longevity. Apparently we have lamentably failed during the long period since the affairs of the island, including its sanitary administration, have been under our control.

Of the mortality from all causes, 45.49 per cent. occurred at ages under five years. The infant death rate during 1919-20 was 14.5 in 1,000 births. The principal causes of infant mortality are: enteritis, with 21,363 deaths; infantile tetanus, with 3,062 deaths; rickets, with 5,247 deaths; and congenital debility, with 6,151 deaths. As observed in the health commissioner's report, "If we investigate, we shall find that infantile tetanus, umbilical hemorrhage, congenital debility, and lack of care are responsible for nearly all of such deaths; all avoidable causes if the value of personal hygiene during the whole period of gestation and the special care that must be rendered to the newborn child were fully appreciated." Among conditions favoring a higher infant mortality mention is made of the high price of milk and its adulteration.

On the subject of malaria, the data are of special interest. During 1919-20 there were 1,576 deaths attributed to malaria, equivalent to 5.2 per cent. of the deaths from all causes. It is argued that to reduce the mortality a more intensive campaign is necessary, but it is not indicated that any campaign along accepted lines is carried out. Reliance is placed upon the Rockefeller Foundation for its financial support, but this is evidently a matter which should be borne in its entirety out of the island treasury.

Influenza caused 550 deaths among some 50,000 persons attacked. It is said that the new outbreak during February, March and April, 1921, was "quickly suppressed," but by what means the disease was brought under the control of the authorities is not indicated.

The number of lepers under segregation in the island is 33. The conditions under which the lepers are cared for have been referred to by some writers as disgraceful. It is said in the report that, "as soon as circumstances permit it, all the necessary

steps should be taken so that the lepers of Porto Rico may enjoy a better lodging." Porto Rico, in this respect, might learn a valuable lesson from what is being done at the present time in Trinidad.

It may be of interest in this connection to point out that cancer is relatively rare. The number of deaths during the year ended June 30, 1920, according to parts affected, was as follows: cancer of the buccal cavity, 20; of the stomach and liver, 67; of the peritoneum, intestines, and rectum, 34; of the female generative organs, 141; of the breast, 10; of the skin, 8; of other organs and parts, 103; a total of 383, which on the basis of a population of 1,299,809 is equivalent to a rate of 29.5 in 100,000. The people of the United States went to war with Cuba on account of the deplorable sanitary neglect of the island and the menace resulting from continuous outbreaks of yellow fever. We certainly owe it to the people of Porto Rico that we aid them in securing a sanitary administration that will reduce the death rate of the island to at least the formerly accepted sanitary norm of 15 in 1,000, which is about two points in excess of the present death rate of the registration area of the United States.

FREDERICK L. HOFFMAN.

MEDICAL AID FOR RUSSIA.

The following letter has been received from the executive secretary of American Medical Aid for Russia. Biweekly purchases of medical goods are being made for shipment to an American Hospital in Moscow. Considerable material has been sent, but more is required. The distribution is made through the Quaker organization, the American Friends' Service Committee. Physicians, known for their generosity, should respond to this appeal:

NEW YORK, April 12, 1922.

My dear doctor:

This committee appeals to you for a contribution toward American medical aid for stricken Russia.

Hunger, cold, exhaustion, and lack of all medical facilities for a period of seven years have caused an increase in epidemic diseases without precedent in modern times.

QUOTATIONS FROM BULLETINS OF RUSSIAN HEALTH DEPARTMENT.

	Prewar average 1904-1913	1920
Typhus fever	99,798	27,777,500
Relapsing fever	53,616	1,031,624
Cholera	(*)	22,106

*Figures not available; the averages annual rate for the five years, 1915-1919, was 15.337.

These figures, it will be noted, represent the epidemic situation prior to the famine which began in the summer of 1921. Today, health conditions in Russia cannot be reduced to statistics. Official reports indicate that the health authorities are straining every effort to meet a situation which the total lack of all necessary supplies renders impossible of control.

Russian physicians are doing all that is humanly possible, but they lack the most elementary facilities for diagnosis and treatment. What you contribute will be used to buy thermometers, soap, dressings, quinine, narcotics, surgical instruments, anesthetics, and disinfectants. Will you not help your Russian colleagues carry the burden of relieving their suffering country?

Please send us your check! Please do not delay!

Faithfully yours,

HAVEN EMERSON,

Chairman, New York State Campaign.

P. S.—Please make all checks payable to the American Medical Aid for Russia.

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NEW YORK, WEDNESDAY, MAY 3, 1922.

Miscellany.

Tumor of Bladder.—A. J. Scholl (*Surgery, Gynecology and Obstetrics*, February, 1922) from a study of the histology and mortality in cases of tumor of the bladder states that in one hundred and sixty-eight epithelial tumors of the bladder removed at operation were three benign papillomata. The three patients were alive on an average of five years after operation. In these one hundred and sixty-eight cases were seventy-one malignant papillomata and ninety-four solid carcinomata. Twenty-six (36.6 per cent.) of the patients in the first group have been dead on an average of eleven months after operation, in contrast to sixty-seven (71.2 per cent.) of the latter group who died on an average of seven and one-half months after operation. Forty-five (43.4 per cent.) of the patients with malignant papillomata are alive on an average of three years and three months since their operation, in contrast to twenty-seven (28.8 per cent.) of the patients with solid carcinoma who are alive on an average of two years and three months. Forty-one and nine tenths per cent. of all patients operated on for malignant papilloma have lived more than three years after operation, only 10.6 per cent. of patients with solid carcinoma have lived more than three years after operation. The incidence of recurrence following operation on patients for solid carcinoma is much greater than that for malignant papilloma. In a solid tumor the local extension is generally more advanced; the removal requires a more extensive operation and the immediate mortality is greater.

Squamous cell carcinomata of the bladder are extremely malignant and rapidly fatal: five or six patients with tumors of this type died after a very short period of symptoms. Adenocarcinomata are about as severely malignant as papillomata. Of five patients one died two years after operation, one had

a recurrence in two years, three are well, two six months and one two years after operation. Simple angiomas of the bladder may grow so large as to cause obstruction. In three cases, one child of seven died of hemorrhage from a tumor growing from the bladder to the rectum; a man aged seventy-six years was first seen in an inoperable condition; and a girl aged nineteen years had an extremely large tumor in the dome of the bladder. This was removed, and five years later the patient was perfectly well. Myomata of the bladder often grow very large. There was one patient in the series with myoma. Eight years after the removal of a large tumor the patient was alive and well. Generally myxomata occur in young persons. Two infants in the series had myxomata; both died shortly after operation. Sarcoma is probably the rarest and most malignant of vesical tumors. It occurs in middle aged persons, metastasizes extensively, and has a tendency to recur rapidly.

Varicose Veins of the Female Pelvis.—Ludwig A. Enge (*Surgery, Gynecology and Obstetrics*, February, 1921) sums up from his observations that varicose veins of the broad ligament in general and of the ovarian circulation in particular are comparatively common occurrences in women; that the symptomatology is plain enough in most uncomplicated cases to suggest their presence; that the diagnosis is, in most instances, made certain by rectovaginal examination in the recumbent, alternating with the sitting position; that the differential diagnosis is aided by the normal leucocyte count; that mild and early cases can be permanently relieved by conservative measures; that the resection of the veins, or more so hysterectomies, is unnecessary to accomplish a cure; that a high suspension of the uterus with a shortening of the uterosacral ligaments offers the best means for a permanent symptomatic cure with a possibility of a permanent anatomical regulation.

Pulmonary Syphilis.—A. Egdahl (*Military Surgeon*, February, 1922) reports a case and the literature of pulmonary syphilis and concludes that syphilis of the lung is probably not as rare as it is supposed to be and that it should be considered a possibility in all cases of pulmonary involvement where the causative agent cannot be demonstrated. This possibility will be greatly strengthened by a positive Wassermann, a history of luetic infection, or the presence of syphilitic lesions elsewhere in the body. These patients should be given antisyphilitic treatment, particularly as such excellent results are obtained in uncomplicated cases. The treatment of this condition consists in the prevention of syphilis and the proper treatment of all cases of syphilis at the earliest possible date, keeping the patients under observation for some time after.

Focal Infection in Gonorrheal Arthritis.—J. H. Cunningham (*Surgery, Gynecology and Obstetrics*, June, 1921) states:

"I wish to urge that the possibility of foci of infection in the deep genital structures be included in the differential diagnosis of infectious arthritis, and I feel certain that those who recognize such lesions and deal with them surgically will be enthusiastic about the results."

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Positive Nonspecific Wassermann and Meinicke Reactions as a Result of Digitalis Therapy.

—Karl Bauer (*Wiener klinische Wochenschrift*, February 23, 1922) shows that a negative Wassermann or Meinicke reaction may become positive under certain conditions, in spite of the fact that no syphilis is present. To obtain this result, the withdrawal of blood for the serologic examination must absolutely take place at a time when the patient is not subjected to any kind of treatment. In some cases the Wassermann and Meinicke reactions are made only weakly positive by digitalis, and in a very few cases are made strongly positive. In both cases these reactions disappear within a few days, allowing the assumption that the stability of the serum varies in different individuals, so that some cases possess a greater tendency for the appearance of a nonspecific Wassermann or Meinicke reaction than others. However, there are also cases in which the patient shows no changes in the serologic reactions in spite of digitalis therapy.

Essential Hematuria.—C. S. Levy (*Surgery, Gynecology and Obstetrics*, January, 1922) from a clinical study of essential hematuria summarizes as follows: 1. The diagnosis of essential hematuria should be made only when all known urological methods have been employed with negative findings. It is a purely clinical diagnosis, indicating renal bleeding of unknown etiology.

2. This paper comprises the studies of thirty cases diagnosed as essential hematuria, based on clinical studies supplemented by conclusions drawn from a questionnaire, the questions of which were so framed as to include the possibility of subsequent development of nephritis, urinary tuberculosis, calculi of urinary tract, renal tumor, operative procedure upon the kidney involved, and recurrences of hematuria.

3. In thirty-six per cent. of the cases the onset of the hematuria occurred in the fourth decade of life.

4. The bleeding in essential hematuria is for the most part symptomless.

5. In most of the cases the hematuria developed spontaneously. Exertion does not appear to play a significant rôle in the origin of these hematurias.

6. The right kidney was responsible for the bleeding in seventeen cases and the left in thirteen cases. In no case were both kidneys involved.

7. The results of operative procedures have not been better than those of nonoperative methods. In our series there were recurrences after decapsulation and two nephrotomies. Nephrectomy is the only operation ever indicated, and that only as an emergency measure to save a patient from bleeding to death and not as a routine measure for intermittent hematuria over a long period.

8. The nonoperative methods have been used with success. These have consisted of intrapelvic injection of silver nitrate and adrenalin, and of the passage of a ureteral catheter; the oral administration of calcium lactate and the subcutaneous or intramuscular injection of horse serum. Of these the intrapelvic methods have given the best results, and it is of interest to note that in a large number of

the cases of the series the urine had become clear within a week or ten days after this form of treatment.

9. It is suggested that the pelvis of the kidney be completely distended with fluid whenever intrapelvic injections are employed. That distention is an important factor in this therapy is shown in many cases in which the hematuria has temporarily disappeared after the injection of an opaque medium for pyelographic studies.

10. The thirty cases have been followed from one month to twelve and a half years. There have been twelve cases with no recurrences of the hematuria, and eighteen cases with recurrences. Of the latter there are two in which urine was bloody at the time of writing. It was not safe to predict cures.

11. Spontaneous cessation of the bleeding occurs frequently in essential hematuria.

12. The general health is usually not affected by the loss of blood in essential hematuria.

13. From an analysis of the questionnaires, we can easily infer that in none of the patients nephritis developed, renal nor ureteral calculus, tuberculosis in any form, nor renal tumor and none has had an operation on the genitourinary tract.

14. Prognosis is favorable in spite of loss of blood and recurrences.

Surgery of Cysts of the Spleen.—R. H. Fowler (*Annals of Surgery*, July, 1921) gives the following report: There are two authentic cases of dermoid cysts recorded. These studies include ninety cases of nonparasitic cysts of the spleen, representing a variety of types due to various causes classified as true and false, depending upon their mode of origin. Nonparasitic cysts are most common in women during the childbearing period. Pregnancy and such antecedent diseases of the spleen as malaria and syphilis can not be evoked for more than minor contributing rôles. In the case of pseudocysts, trauma plays the most important rôle in the simple, large, unilocular, so-called hemorrhagic or serous type; the latter usually develops secondarily from the former. The influence of twisted pedicle, embolism and disease of intrasplenic bloodvessels cannot be denied. In the case of true multiple cysts, inclusions of misplaced cellular nests (endothelium of the peritoneum or cells of origin of lymphatic spaces or vessels) during the development period, or as a result, in later life, of traumatic or spontaneous rupture of the capsule or of perisplenitis, may result in multiple cysts of the serous or lymphatic variety. True neoplastic cysts (lymphangioma hemangioma) are not common. Sixty cases of neoplastic cysts have been treated surgically, eleven by puncture, fourteen by incision and drainage, six by excision or partial splenectomy, thirty by splenectomy. The latter is usually the method of choice. The mortality for splenectomy is three and five tenths per cent. Echinococcus disease of the spleen represents the one type of parasitic cysts reported in the literature. This disease is rarely a surgical problem of the spleen alone, for in about four fifths of the cases the liver or another organ is involved. There are about one hundred recorded cases up to 1890. The mortality for twenty-three cases subjected to splenectomy up to 1908 is about seventeen per cent.

To the Medical Profession:—

"Alonzo Taylor also adds evidence to the fact that the anti-scorbutic vitamin in canned milks is not necessarily destroyed, from the fact that in the war zone this milk prevented, and even cured scurvy. It was found that it takes about eight ounces of condensed milk, which is the equivalent of 20 ounces of milk, per day, to cure infantile scurvy."—(Quoted from the article, "Vitamins in Milk," the Boston Medical and Surgical Journal, May 5, 1921.) The above mentioned reprint, and our suggestions pertaining to the proper method of preparing sweetened condensed milk, will be sent upon request.

For the milk-diet-only period, sweetened condensed milk, having retained the fat soluble A, and the water soluble B vitamins in almost their original potency, offers a complete milk food for the average normal bottle-fed infant. The timely use of fruit-juice as well as of cereal-jelly, and the proper method of preparing feedings, should be considered the same as with other modified milk feedings.

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Treatment of Hypernephromata.—H. W. S. Wright (*British Journal of Surgery*, January, 1922) says that the results of the treatment of hypernephromata are not encouraging. Their great vascularity and their tendency to invade the renal vein make dissemination by the bloodstream a not infrequent happening. He presents reports of thirteen cases, of which two cannot be traced. One of them is unlikely to have escaped recurrence judging by the pathological findings. A large mass of growth was seen during operation at the junction of the renal vein and the vena cava, and it has therefore been classed as a recurrence. As the results of operation there were two deaths, one from uremia and the other from postoperative pneumonia. No secondary deposits were found postmortem. Two cases recurred locally within six months of operation. In both the capsule was invaded. In one case death occurred from recurrence in the abdomen and lung, and in the one previously mentioned recurrence almost certainly recurred. Of the remaining six patients one died five years afterwards of cerebral embolism; there was no clinical evidence of any recurrence; two were alive and well nine and seven years respectively after operation. These two may be fairly classed as cures, although one patient died subsequently of pneumonia, two were alive and well three and two years respectively after operation, and the last one was operated on too recently to be of any use for statistical purposes.

A study of the growth and microscopic pathology of these tumors raises hopes that local recurrence may be prevented by a more thorough removal of the perirenal fat. It is impossible to say how thoroughly this was done in these cases owing to the insufficiency of all the operation records. None of the specimens show really extensive extrarenal infiltration, such as is seen in other types of carcinoma. The appearances suggest that pressure, often caused by a recent subcapsular hemorrhage, is the cause of the capsule giving way rather than that the growth is eating into the surrounding tissue. Microscopical examination demonstrates that even when the growth has invaded the capsule the fat is not usually widely infiltrated.

In most of these cases the kidney was removed by the lumbar route, and from the point of view of facility there is little advantage to be gained from an abdominal approach. On the other hand, theoretical considerations would indicate that the renal vein should be ligated before any manipulation of the tumor is undertaken, for fear of dislodging any growth it may contain; but from a practical point of view, if there is any growth in the vein, even should it be possible to remove it by ligature close to the vena cava, it is almost certain that particles have already been detached and have entered the general circulation. In this series none of the patients in whom the vein was invaded have been proved to have survived more than six months. In four cases out of the nineteen the vein was invaded. This is a lower percentage than the figures given by the Mayo Clinic. Out of their thirty-two cases, in sixteen there was invasion of the venal vein; ten of these recurred, and in the rest the patients either died as a result of the operation, or less than six months had elapsed between the operation and the report. It

appears, therefore, that invasion of the renal vein which is appreciable to the naked eye makes the prognosis extremely grave, and almost hopeless. Shock is an important consideration in operations on the kidney. It is minimized by the use of a curved oblique lumbar incision, prolonged upwards behind so that the external arcuate ligament may be divided, and downwards in front as far as the anterior superior spine and a little mesial to it. If, at the same time, the quadratus lumborum is nicked transversely, all the space required can be obtained for the removal of the largest tumor. It should be borne in mind that adhesions between the kidney capsule and the surrounding fat do not necessarily mean extension beyond the boundaries of the organ.

Cancer of Prostate.—C. L. Deming (*Surgery, Gynecology, and Obstetrics*, January, 1922), presents the following conclusions from a study of one hundred cases of cancer of the prostate: 1. A combination of radium and surgery offers a possibility for treatment of cancer of the prostate and seminal vesicles. 2. Operation does not diminish the amount of radium necessary to produce good results. 3. Operation does not increase the possibility of hastening metastases. 4. Histological picture is variable. 5. Radium does not act alike on all cancer tissue. 6. Radium has two distinct actions, one of gradual cell destruction and fibrous displacement and another of necrosis. 7. There are three kinds of cancer of the prostate, scirrhus, adenocarcinoma, and cellular or medullary.

H. H. Young, in the same issue, describes the technique of radium in cancer of the prostate and seminal vesicles, asserting that by this technic really remarkable results are often obtained in apparently incurable and extensive cases of carcinoma of the prostate and seminal vesicles. Extraordinary functional results are sometimes obtained with relief of pain, hematuria, difficulty and frequency of urination, and attending discomforts. In some cases apparently radical cures have been obtained, but time is yet too short to pronounce definitely upon this point. Suffice it to say that in a desperate class of cases, a great boon can often be furnished and the remaining months or years of these patients at least made far more comfortable.

Kidney Function.—Alfred N. Richards (*American Journal of the Medical Sciences*, January, 1922) discusses at some length the glomerular function and the modes of its regulation. He presents new evidence that increment of blood pressure, uncomplicated by increment in velocity or volume of blood flow in the kidney, increases urine formation, and regards this as added support to the filtration hypothesis. He also believes that some of the most weighty objections to this hypothesis can be reasonably explained. Indications are shown that nervous stimuli and chemical substances may exert different degrees of effective influence upon the afferent and efferent vessels of the glomerulus, and that this may be a factor in that automatic regulatory control of glomerular filtration which is responsible in part for the maintenance of constancy of blood composition. Finally he presents a new description of the mode of circulation through the glomerular vessels.

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Worcester, Mass.

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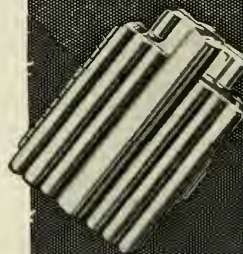
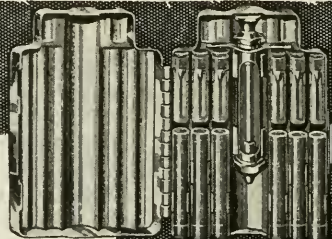
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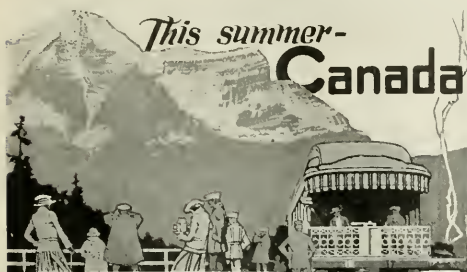
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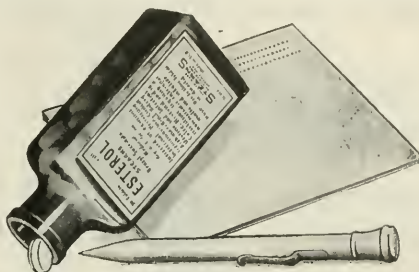
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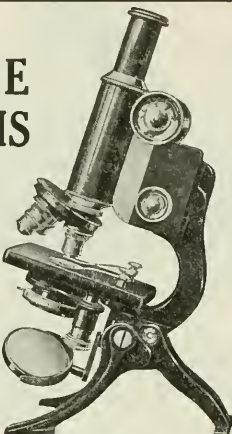
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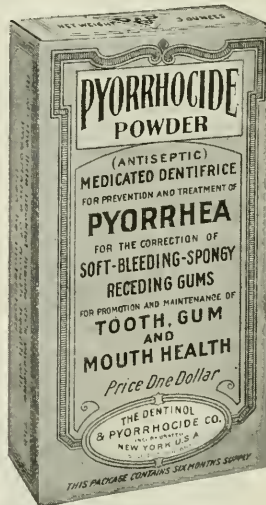
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Herewith is a photograph of Page 95, Vol. 11, "Diseases of Women," as edited by H. Marion-Sims, M. D., and in Dr. Sims' own words, is recorded the high esteem in which he held *Hayden's Viburnum Compound* and the "great service" rendered in treating

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DYSMENORRHEA.

95

It has been long known that rest is most efficacious in relieving dysmenorrhea. Some patients habitually go to bed during the menstrual process, finding so much relief from the position. There is nothing therefore new in the recommendation to rest at this time, but experience has shown that the positional treatment above described carries the effect still further. The treatment is particularly valuable in the case of young single women who are suffering from dysmenorrhea not of such severe character as to render internal treatment imperatively necessary. And indeed I have in several cases employed positional treatment with great success where no examination at all had been made, but where the symptoms and general history conclusively showed that the patients were suffering from commencing uterine flexion.

Positional treatment is also very valuable as an adjunct in cases where internal mechanical apparatus are in use.

Palliative Measures.—Rest, the horizontal position, postural treatment, as above described, are all of first-rate importance. The warm hip-bath, temperature too° or even higher, is to be recommended. Copious vaginal injections of hot water are sometimes found very serviceable. Ether, compound spirit of sulphuric ether, camphor, and hebanne are ordinary and very useful remedies. Gin and water is a common domestic remedy. Poultices with laudanum sprinkled over them, hypodermic injections of morphia, turpentine stupes, are other remedies occasionally employed. Suppositories containing opium or morphia are very effective, but the use of opium is not advisable unless under strict medical orders. Chloral and bromide of potassium are good remedies. Guaiacum (Dewees), black hellebore (Meigs), have been strongly recommended. Colchicum, cannabis indica, and in fact every sedative and anti-spasmodic in the pharmacopoeia, have been employed for the relief of the pain with more or less success.

[For severe dysmenorrhea I have frequently found *Hayden's viburnum compound* of great service, given in teaspoonful doses every hour for three or four hours.]

During the menstrual period great care is required that the bowels be kept regular, that the digestive organs be in an easily working condition, and that food be adequate but not in too great quantity. It should be known that it is dangerous to use cold baths during menstruation.

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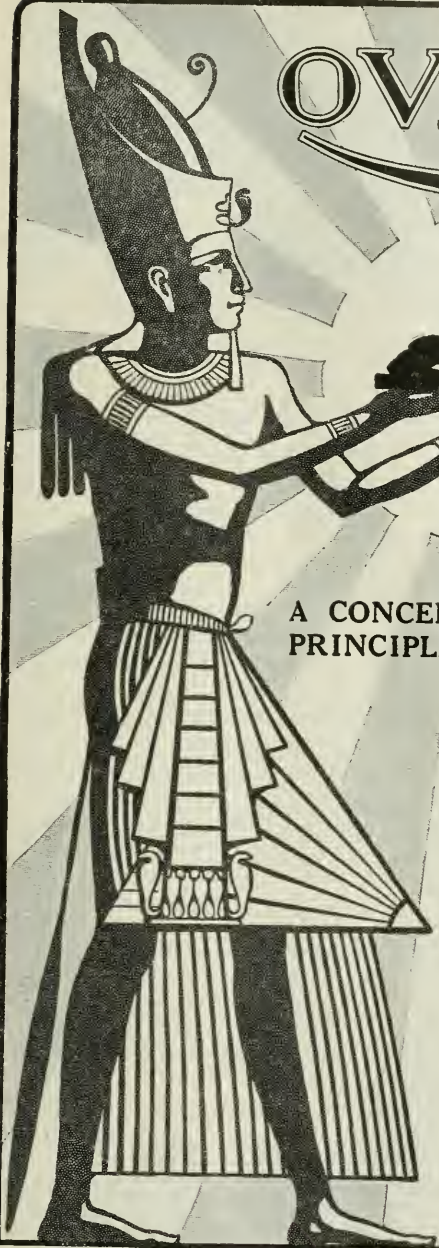
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An illustration of an Egyptian deity, likely Osiris, standing and facing right. He wears a tall, black, feathered headdress (nemes) with a uraeus (cobra) on the side. He is dressed in a black kilt with a white pleated apron (shendyt) over it. He holds a long, thin staff or scepter in his right hand. In his left hand, he holds a small, ornate tray or offering stand. On the tray sits a small sphinx. The background features a stylized sun with rays emanating from behind it.

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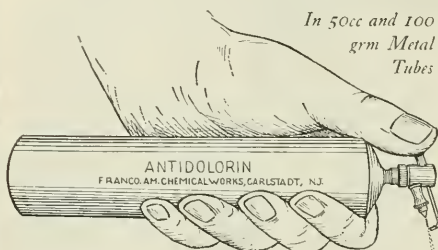


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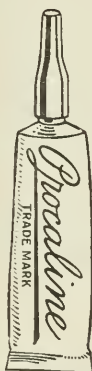
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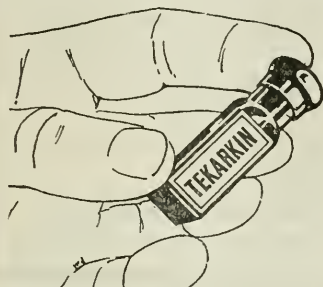
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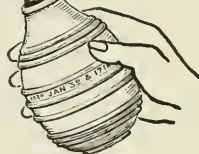
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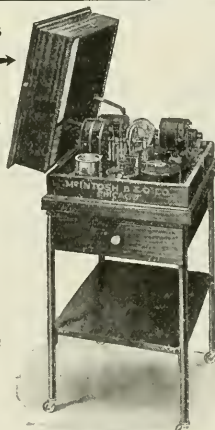
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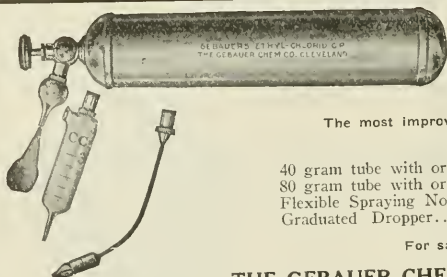


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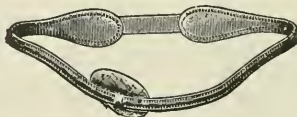
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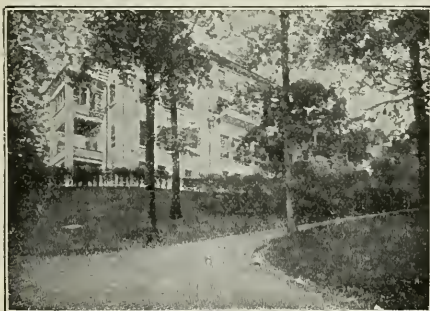
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